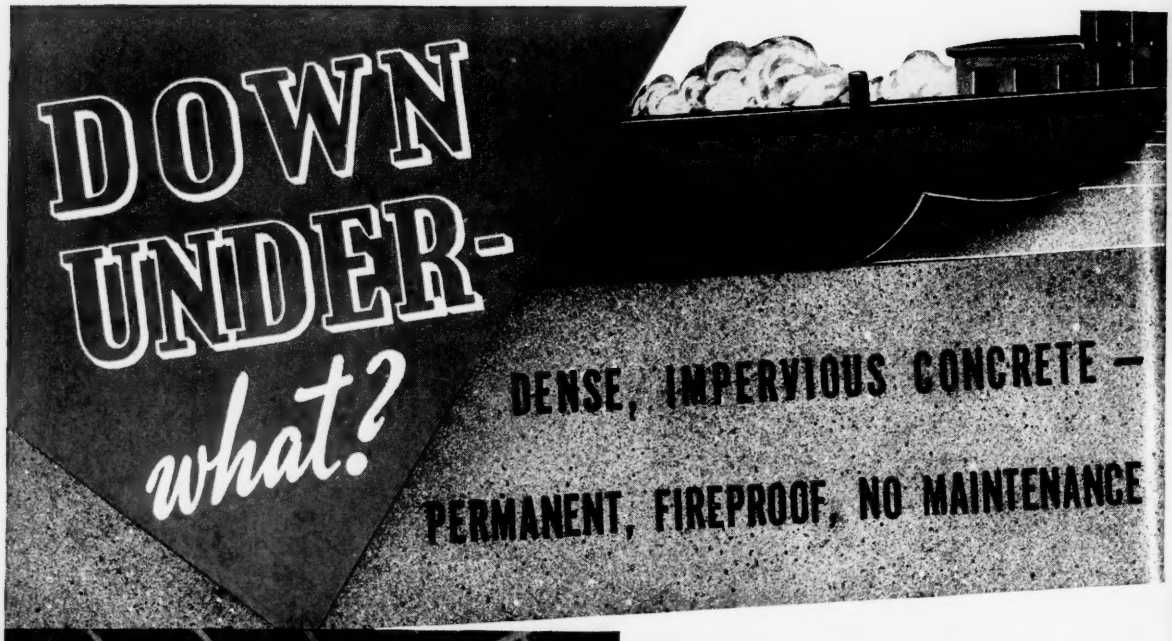
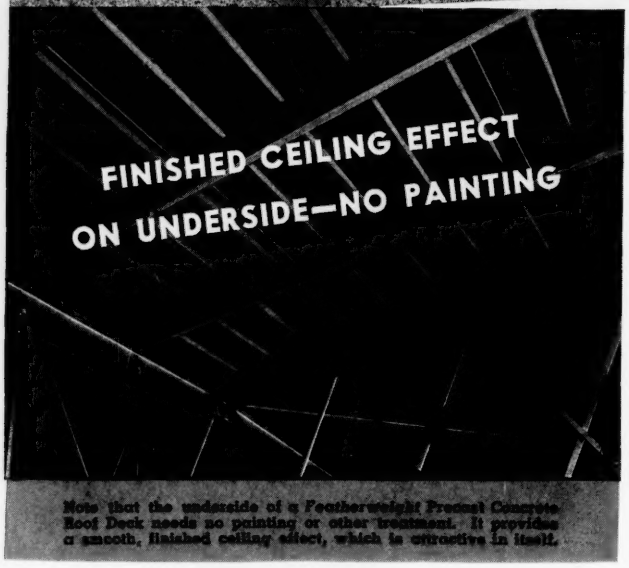
Manufacturers Record

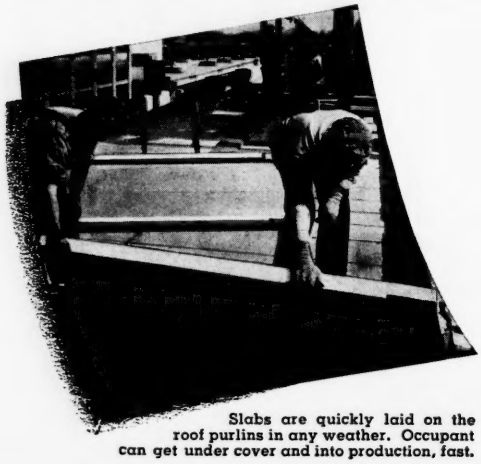
"UNITED WE STAND"

BALTIMORE, MD. JUNE, 1942





Note that the underside of a *Featherweight* Precast Concrete Roof Deck needs no painting or other treatment. It provides a smooth, finished ceiling effect, which is attractive in itself.



Slabs are quickly laid on the roof purlins in any weather. Occupant can get under cover and into production, fast.

Featherweight PRECAST CONCRETE ROOF DECK

Hidden Values Provide Lasting Economy

• What happens to a roof deck down under the weatherproof covering, depends entirely upon how well that roof deck can resist the effects of fire, moisture, heat, cold, smoke, soot, cinders and other destructive elements.

Wood and other impermanent materials are subject to rot, rust and disintegration—require continual repairs and painting to keep them in service. Such a roof deck deteriorates each year until it finally goes out entirely and then has to be replaced.

• On the other hand, when you select a *Featherweight* Precast Concrete Roof Deck, you know that nothing will happen down under, to impair that roof deck. You will always be assured of permanent, fireproof, economical roof service, with no expense at any time for repairs or replacements.

• Of timely importance, you will have efficient protection against costly interruptions and delays to production. Catalog on request.

Prompt Service From Our BIRMINGHAM, ALA. Plant

Made, Laid and Guaranteed by

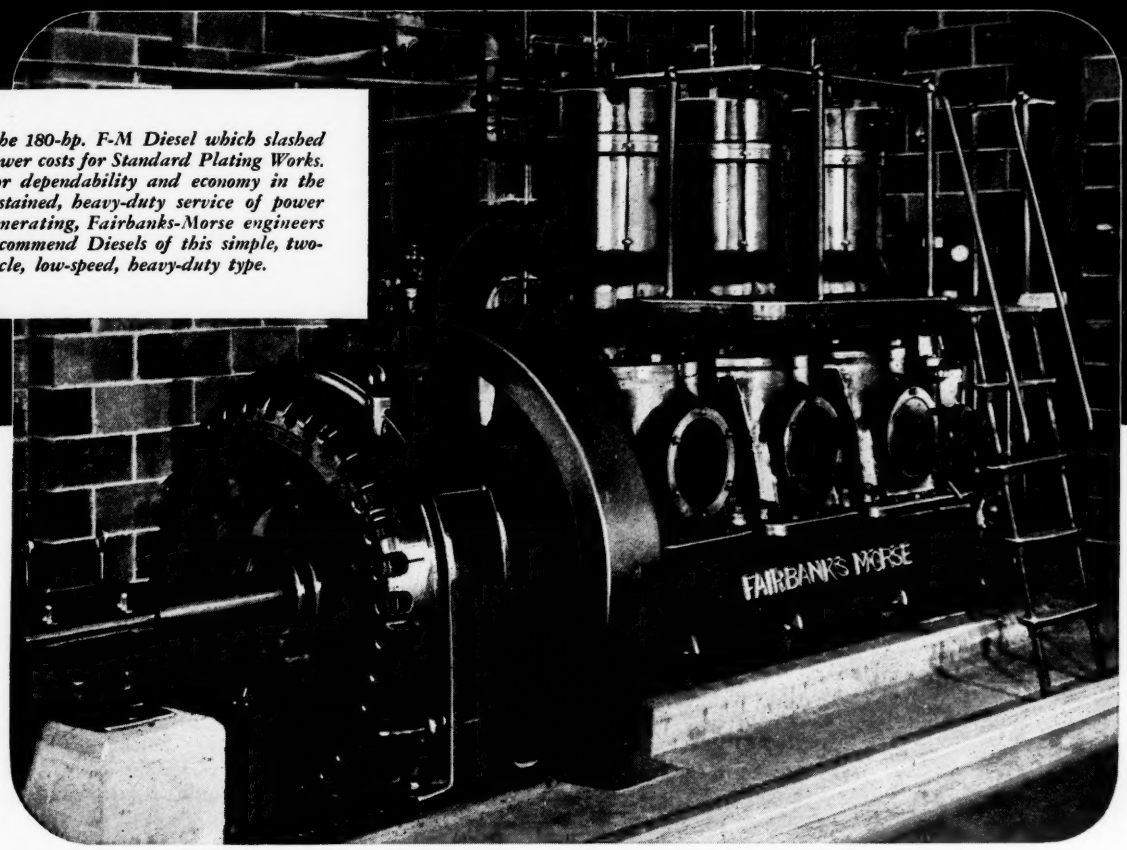
FEDERAL-AMERICAN CEMENT TILE CO.

608 South Dearborn Street, Chicago

For Over 35 Years ***Sales Offices in Principal Cities***

Plants near Chicago—New York—Pittsburgh—Birmingham

Electroplater Reports Big Savings from Generating Own Power



The 180-hp. F-M Diesel which slashed power costs for Standard Plating Works. For dependability and economy in the sustained, heavy-duty service of power generating, Fairbanks-Morse engineers recommend Diesels of this simple, two-cycle, low-speed, heavy-duty type.

TO CUT operating costs, the Standard Plating Works, Goshen, Indiana, installed a Fairbanks-Morse Diesel to replace purchased power. Now, $165 worth of Diesel fuel and lubricating oil (1) provides all the electricity needed in an average month . . . current which would cost $660 if purchased, and (2) supplies power for pumping water, previously purchased at $65 per month.

Thus this electroplater's F-M Diesel places a very substantial sum on the profit side of his ledger each month. For there's a big saving left after provision for amortizing this profitable investment and paying for added labor. Due to F-M simplicity of design, extra labor cost is but $30 per month. And unit power costs remain low in both busy times and slack.

Perhaps *you* are considering generating part or all of your power . . . to reduce operating costs, to facilitate expansion, to avoid paying peak penalties, or to insure uninterrupted production regardless of what may happen outside your plant. If so, it may pay you well to discuss the matter with an F-M power engineer. No cost, no obligation. Write Fairbanks, Morse & Co., Dept. F93, 600 S. Michigan Ave., Chicago. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE F M DIESELS

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

XUM

One-Piece" Ships and Buildings All-Welded Steel Construction by INGALLS

Welded steel construction is writing a new chapter in American industrial achievement. Today, entire ships are being fabricated and assembled without rivets at Ingalls' shipyards—first in the nation designed exclusively for all-welded construction. Not only do all-welded ships require less steel and less building time: they are stronger, faster, carry larger cargoes, consume less fuel. . . .

On skyscrapers, bridges, reservoirs and steelwork of every description, Ingalls' methods have silenced the blast of the riveting hammer. Beams and plates now are welded into one strong piece, with substantial savings being effected in weight and cost.

Ingalls—the nation's largest independent fabricator of structural steel—has not only pioneered in improved arc-welding methods, but has applied them to the fields of design and fabrication. Today we are meeting new demands on many fronts—demands for greater speed, higher efficiency, maximum economy. Our nation-wide engineering and erection service is available to consulting firms and contractors everywhere. Investigate the timely advantages of Ingalls' methods in fabrication, arc-welding and final construction.

S.S. AFRICAN METEOR, one of three all-welded passenger-cargo liners built by Ingalls for American South African Line, Incorporated.

Plate work furnished by Ingalls for famed Florida Marineland Aquarium. These all-welded tanks have an 827,000-gallon total capacity.

THE INGALLS IRON WORKS COMPANY
BIRMINGHAM, ALABAMA
Subsidiary Companies and Divisions
THE INGALLS SHIPBUILDING CORPORATION • THE STEEL CONSTRUCTION COMPANY • BIRMINGHAM TANK COMPANY
Shipyards PASCAGOULA, MISSISSIPPI • DECATUR, ALABAMA
Branch Offices NEW YORK • PITTSBURGH • ATLANTA • NEW ORLEANS

This is one of a series of advertisements sponsored by The Ingalls Iron Works Company in Fortune Magazine. Its purpose: to acquaint men in key positions with the many advantages of electric arc welding in all types of steel construction.

TABLE OF CONTENTS

JUNE, 1942

Volume 111, Number 6

EDITORIALS

Things That Interest Us 6
Our Flag 21

FEATURE ARTICLES

The Source of Our Rubber 22
Timber Takes Its Place in Construction by H. C. Berckes 24
War Contracts and Allocations in the South 26
OPA's Job by Leon Henderson 27
Airplane Production Goes to War 28
Texas Soil Conservation Attracts World Wide Attention by H. H. Bennett 30
Water for the South's Powder Plants 32
South's Construction Contracts Total Over $440,000,000 in May. 34
New Priorities Put in Effect During May 36
New Industrial Plants and Expansions in the South During May 37
Subcontractors Wanted 38
Industrial Production Trends 40

DEPARTMENTS

New Methods and Equipment 48
Industrial News 49
Trade Literature 50
Index for Buyers 68
Index of Advertisers 72

The Flag shown on the front cover is from an actual photograph by Mettee of the flag on the Administration Building at the U. S. Naval Academy, Annapolis Md.

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthy by the
MANUFACTURERS RECORD PUBLISHING CO.
FRANK GOULD, President

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Atlanta, Ga.—75 Third Street, N.W. Phone: Vernon 6646.
Miami, Fla.—525 Ingraham Building. Phone: 3-5838.

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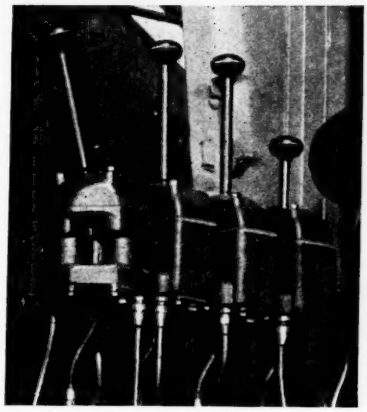
Member A. B. C.

Entered as second class matter at the postoffice, Baltimore, Md., U.S.A., under act of March 3, 1879. Volume 111, Number 6 Monthly

Westinghouse
"FLEXAIR"
Valves



Facilitate Remote Pneumatic Control

Invaluable for factory, construction, excavating, oil well, or marine equipment . . . They help increase productivity of machine tools, activate hoists, shovels, and derricks, speed up drilling operations, and make boats more maneuverable.

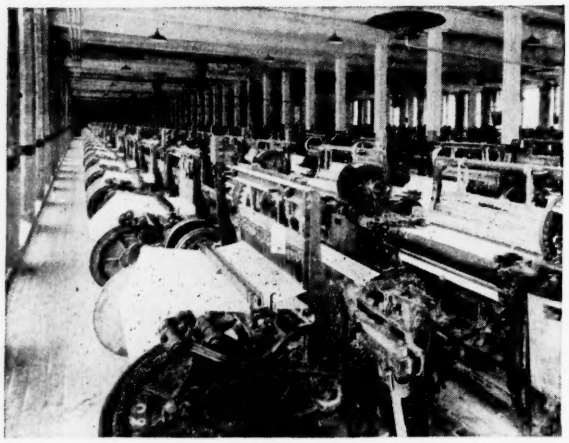
These valves are positive, extremely flexible, easily manipulated, and versatile. Made in a variety of forms for remote control of a single, or several functions, in the operation of clutches, mechanical movements, or other devices. The illustration shows a group of four "Flexair" valves controlling a multiplicity of interlocked functions on an excavating machine.

Scores of varied types of applications have proved the merits of Westinghouse "Flexair" valves. No doubt there's a control problem that these valves can solve for you. And you'll want also a Westinghouse compressor, tank, operating cylinders, "Savair" cocks, etc., to make the installation complete. Write us for such information as will serve your needs.

Westinghouse . . . .
AIR BRAKE CO.
Industrial Division
PITTSBURGH, PA.

Designers and builders of pneumatic control apparatus since 1869.

AT
NORRIS COTTON MILLS, TOO
—NORTHERN HARD Maple



40,000 sq. ft. of floor area re-floored with 25/32" MFMA Northern Hard Maple in The Norris Cotton Mills, Cateechee, S. C.

"Re-flooring with Most Lasting Material"
says
T. M. NORRIS, President

"We have just completed re-flooring our cotton mill with Northern Maple stock, laying the new over the old floors," says Mr. Norris. "The completed job is very satisfactory and it is our expectation that these floors will now give us satisfactory service for the next twenty years."

"Cotton mill floors are subjected to very rough usage and it requires the toughest material to stand up under the constant wear. After considerable investigation, we came to the decision that Northern Maple Flooring would meet our needs and would make a more lasting floor than any other material we might use."

In mills everywhere, Hard Maple's daily satisfaction and eventual economy have been proved through the years. When you build, remodel, or re-floor, don't fail to investigate **MFMA** (trademarked, guaranteed) Northern Hard Maple. Ask your architect.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1797 McCormick Building, Chicago, Illinois

Write for folder on heavy-duty finishes for old or new Maple floors, which further reduce cleaning costs. See Sweet's, Sec. 11/82.

Floor *with*
MFMA Maple
(NORTHERN HARD)

Things that interest us

—o—

Taxation and Politics

ACCORDING to Funk & Wagnalls Standard Dictionary a tax is "a compulsory contribution levied upon persons, property or business for the support of government."

It is to be noted that, according to this definition, the payment of a tax is compulsory and that its only stated objective is to pay for the cost of government.

The fact that any tax is compulsory is clearly recognized by everybody, even the clever young lawyers who choose the words and phrases that are incorporated into the laws. The word "contribution" in place of "tax" in the old age pension law and the unemployment law failed to fool anyone.

But the second elemental fact that taxes are the sources of revenue that keep the government solvent and that this truth is the fundamental premise on which all tax thinking must be based is not clearly recognized.

Ever since the adoption of the 16th amendment to the Constitution in February, 1913 the federal tax problem has been befogged by secondary and even extraneous considerations. The New Deal, with its fine sounding social objectives has deepened this fog to the point where the real purpose of a tax has become almost totally obscured.

Let us try to look into the mind of one of the federal lawmakers who is intrusted with the duty of helping to frame the tax law now pending. Let us try to discover his thoughts and motives as he approaches his problem.

If he decides he can get by easier by further increasing the burden of public debt, he has failed completely to distinguish between operating income and capital investment. He is also deliberately "passing the buck" to future generations. After this reassuring decision has had time to exert its soothing, narcotic influence, the lawmaker begins to consider some of the specific proposals that have been prepared for him and to examine them to see (1) whether their general psychological effect will be such that they may tend to lose votes for his party or for himself, (2) whether the burden they impose falls on the few whose votes are negligible, or on the many whose votes are all important, (3) whether they will meet with the approval or arouse the antagonism of any of the powerful political pressure groups, (4) whether (fairly or unfairly) they can be tagged by the political opposition, as inflationary, and (5) whether they can be exploited and publicized by some seemingly plausible slogan such as social security.

Finally, after considering these and many more questions of local and national unimportance, the harrassed lawmaker wonders vaguely whether the

tax bill that he is helping (?) to draft will come anywhere near to supporting the government in the style to which, unfortunately, it is now accustomed.

The MANUFACTURERS RECORD thinks that it is time to stop patching antiquated tax laws and to face the tax problem squarely, intelligently and honestly. It is time that every one of us from the richest to the poorest realizes that taxation is the nation's number one business problem and that it is not a political football or the motive power behind a social experiment.

Why not a sales tax?

Equal Sacrifice or Inflation

ONE war has been fought and won and a couple of decades have intervened since this writer studied economics as a graduate student under Frank Fetter at Princeton. His economic theory was supposed to be radical at that time. It may be considered mossbacked today.

Be that as it may, there is no rational way to prove that there is any way to correct either inflation or deflation unless the normal economic law of supply and demand is completely displaced and superseded by government price regulation.

Under perfectly free, competitive conditions if a supply of goods is plentiful and purchasing power low the price of those goods is going to be low. If the supply of goods is scarce and purchasing power ample the price of those goods is going to rise. These theories are inescapable truths. Southern cotton and western wheat and corn in 1932 prove the first. Potatoes at a dollar apiece during the Klondike gold rush prove the second.

Because our productive facilities are now largely engaged in turning out war materials and equipment for our armed forces a shortage of civilian consumer goods is bound to result. Because our workmen, our business men and our farmers and miners are going to be fully employed and earning good incomes they will have money to spend for things that are hard to buy. These two conditions, one of supply and the other of demand spell inflation unless they are corrected at their sources.

It is futile to talk of price control unless controls are also placed on the costs that govern that price. The cost of raw materials from farm or forest or mine or well is a basic factor to the business that transforms that raw material into a commercial article. So price fixing should start with farming and the fruits of all of our national resources.

Wages should be stabilized on a definite base.

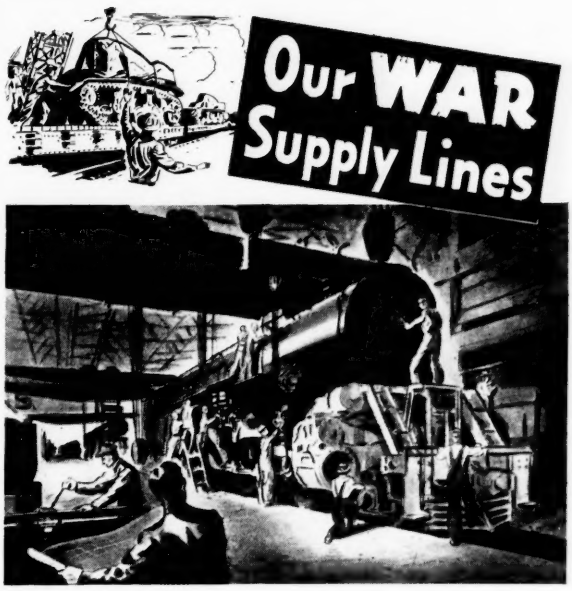
Salaries should be stabilized on a definite base.

Rents should be stabilized on a definite base.

Interest rates should be stabilized on a definite base.

This will take care of the second element of cost

(*Continued on page* 8)



..start HERE!

A lack of adequate mass railway transportation in this country during the critical months that lie ahead, would be disastrous to the war effort of America and her allies. For only the railroads provide the mass transportation for moving the vast quantities of materials of war from mines, forests and farms — to mills and factories — to assembly plants and warehouses — to camps and ports.

Transportation experts, in and out of government, know and have publicly declared, that the American railroads are doing the biggest, most efficient transportation job in the history of the world. The railroads are doing the job today because they have spent huge sums for new equipment and improvements of every kind. From September, 1939 — at the outbreak of war in Europe — to December 31, 1941, the Norfolk and Western has authorized or expended more than $60,000,000 for new cars and locomotives, expansion and betterments.

America is hitting its stride in the greatest program of mass production of war materials ever known. The railroads must provide more and more mass transportation. This means that the railroads must have more and more cars and locomotives, materials and supplies. Victory must and will be won.

Norfolk and Western Railway
PRECISION TRANSPORTATION

COPR. 1942 N. & W. RY.

Industrial Opportunities in the Southeast

In a growing tide, industry is moving into the Coastal Southeast. Within the past decade, the value of products manufactured in the six states served by the Coast Line has increased more than 50 percent.

The Southeast possesses the natural advantages which thriving industry needs, but intelligent planning, careful selection of plant locations with respect to raw materials, transportation facilities, power and markets are required to build for a sound future.

In the rush of present day affairs, why not use a free, reliable and experienced source for information concerning the area in which expansion is planned?

The Coast Line's Development Service is prepared to furnish complete information concerning available plant sites, raw materials, labor and market conditions to industries seeking the facts about the Southeast. Inquiries are invited and will be treated confidentially.

J. H. Hatcher
Manager Development Service
Wilmington, N. C.

ATLANTIC COAST LINE RAILROAD

Things that interest us

Equal Sacrifice or Inflation

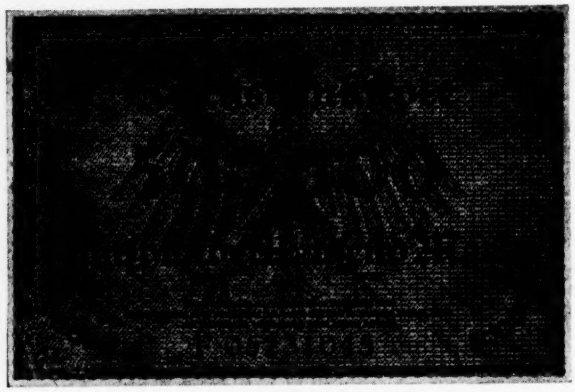
(*Continued from page* 7)

that controls the ultimate price to a consumer or user.

Personal, partnership or corporate profits should be limited by graduated income taxes based on volume and kind of business so that a fair, and only a fair profit is made on invested capital.

If these elements that go to make up price are controlled, prices will control themselves without doing any harm to any of the millions that are a part of our nation. If any of these elements are left out of control then harm is going to be done to all of the others that are subject to control.

The MANUFACTURERS RECORD believes in a free and competitive form of society but it also believes in individual sacrifice in time of war. We think that sacrifice should be free but above all we think it should be equal.



What inflation means is clearly demonstrated by this 500,000 *reichmark note that was received in change on a streetcar in Germany during the inflation of the* 1920's.

What Inflation Means

An editor visiting Germany in the early 1920's *sends us the following.—Ed.*

CAN you imagine yourself going to the post office to get stamps for an ordinary letter and finding that the envelope is not big enough to accommodate all the stamps that are necessary? Yet that was my introduction to Germany on my last visit in the early 1920's. The letter I wanted to mail home was in an envelope about 4½" by 6", yet the number of stamps needed were more than I could get on one side of it. That is what inflation means.

That particular instance is perhaps somewhat

amusing as some of the others were also. But though I had been in Germany several times since inflation started, the extent to which it had progressed on the last visit astounded me. I cabled for twenty-five dollars and when it arrived it took two or three men to bring it along, each of them carrying two bundles.

Fortunately, I knew what inflation meant by that time so I refused to accept the German marks and only kept what I needed for that particular day, keeping the balance on hand at the bank in American currency to be converted as necessary. The reason for doing this was because inflation had reached the point where money left over from one day had no value the next. What was sufficient to buy a suit of clothes one day was not enough to buy a box of matches the next day.

Of course, from a foreigner's point of view, it wasn't so bad. Dress shirts cost about twenty-five cents, ties were less than a nickel, a derby hat I bought cost about fifty cents—the only trouble was that if you bought anything, when you took it out of the country you were taxed according to its value on that day and the tax was very high.

No, it wasn't so bad from a foreigner's point of view, but what about the German point of view? I remember seeing a farmer and his wife come into town with their week's supply of butter and eggs for sale. Their eyes nearly jumped out of their heads when they saw the huge amount of money they got for those few paltry pounds of butter and several dozen eggs. They had never seen that much money before. Entranced by the sight of it, they went back home to gather up everything they could and return to sell it in town. Included was the deed of their farm. Yes, they sold everything quite quickly, but the next day there was nothing left. The millions of marks they had in their pockets weren't worth the paper they were printed on. That incident was repeated countless times—sometimes through avarice for money, more often through necessity because the money or wages on hand were insufficient to buy the necessities of life.

It is not an easy thing to draw a picture of a country in which inflation is rampant but, those who have been there can never forget the look on people's faces of utter incredulity and hopeless grief at seeing everything they possess turn into worthless paper in the space of a few hours.

Like war, inflation is a horrible thing, but apparently we in this country must personally experience it in a physical sense before we realize how terrible it is. How else could one explain the direction in which we now appear to be going? Merely to reply that if we have inflation it will be controlled is no sane answer. Once the printing presses get going it is difficult, if not impossible, to stop them.

WHERE + OR — 2° *can be a saboteur!*

Here are ideal conditions for both workers and products. Line after line of air conditioning ducts in this long building are made of galvanized ARMCO Ingot Iron. In thousands of indirect lights ARMCO Enameling Iron does its bit as porcelain enameled reflectors.

Men who build war plants not only talk about the weather—they *do something* about it. There is no other way out when a temperature change of 2°F. can throw precision instruments more than 1/1000th of an inch out of line! Air conditioning is the answer.

Many air conditioning ductwork systems are constructed of galvanized ARMCO Ingot Iron. Manufacturers specify this durable metal because it has the longest actual service record (36 years) of any low-cost iron or steel sheets. Yet with all its durability ARMCO Ingot Iron costs on the average only about 1¢ a pound more than ordinary galvanized metal.

Long service life is important in the construction of *buildings* too. That's why corrugated ARMCO Ingot Iron is being used for roofing and siding on so many new structures needed for army ordnance and arms production. Engineers are not losing sight of the post-war value of these emergency buildings.

If you are designing buildings or air conditioning systems for war production write for data about galvanized ARMCO Ingot Iron.* We'll give you proof of its long life and low maintenance cost. The American Rolling Mill Co., 1901 Curtis Street, Middletown, Ohio.

**For immediate painting and long paint life ask about galvanized ARMCO Ingot Iron PAINTGRIP.*

GALVANIZED ★ ARMCO ★ INGOT IRON

XUM

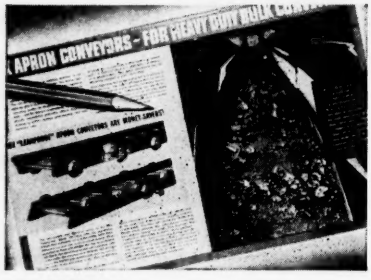
HERE'S A BOOK OF
IDEAS TO HELP SOLVE
CAPACITY PROBLEMS!

. . . LET ME SHOW YOU WHAT IT CONTAINS . . .

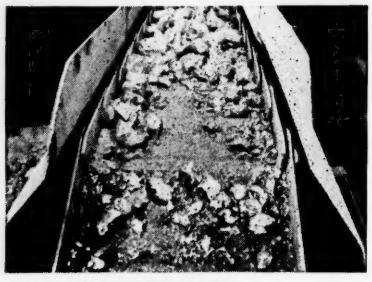
① **IT'S BUILT AROUND** a single idea; how Rex conveyors can help increase your capacity with minimum cost to you —minimum disturbance to your production set-up. That's a sound basis, isn't it?

② **"YOU BET IT IS"**, this engineer told me, "and if it lives up to its objectives, it certainly will give me some handy hints. I see that on the first page you get started in your story immediately."

③ **YOU BET WE DO.** We tell immediately how the three classes of Rex conveyors —belt conveyors, apron conveyors, and all types of bucket elevators—can fit into the needs of any plant, new or old.



④ **THERE IS** the information that tells you exactly which Rex apron conveyor will meet the needs of your material handling problems . . . ways in which you can speed up production at small cost and with minimum delay for installation.



⑤ **IT GOES RIGHT DOWN** the line. First of all, it shows you how other plants have used Rex conveyors, elevators, or apron conveyors. And you know that that's one of the best sources of information any plant operator has.

⑥ **ANYONE RESPONSIBLE** for production these days should have the very latest information on materials handling equipment designed by Rex. This free book will be well worth the time you take to send for it.

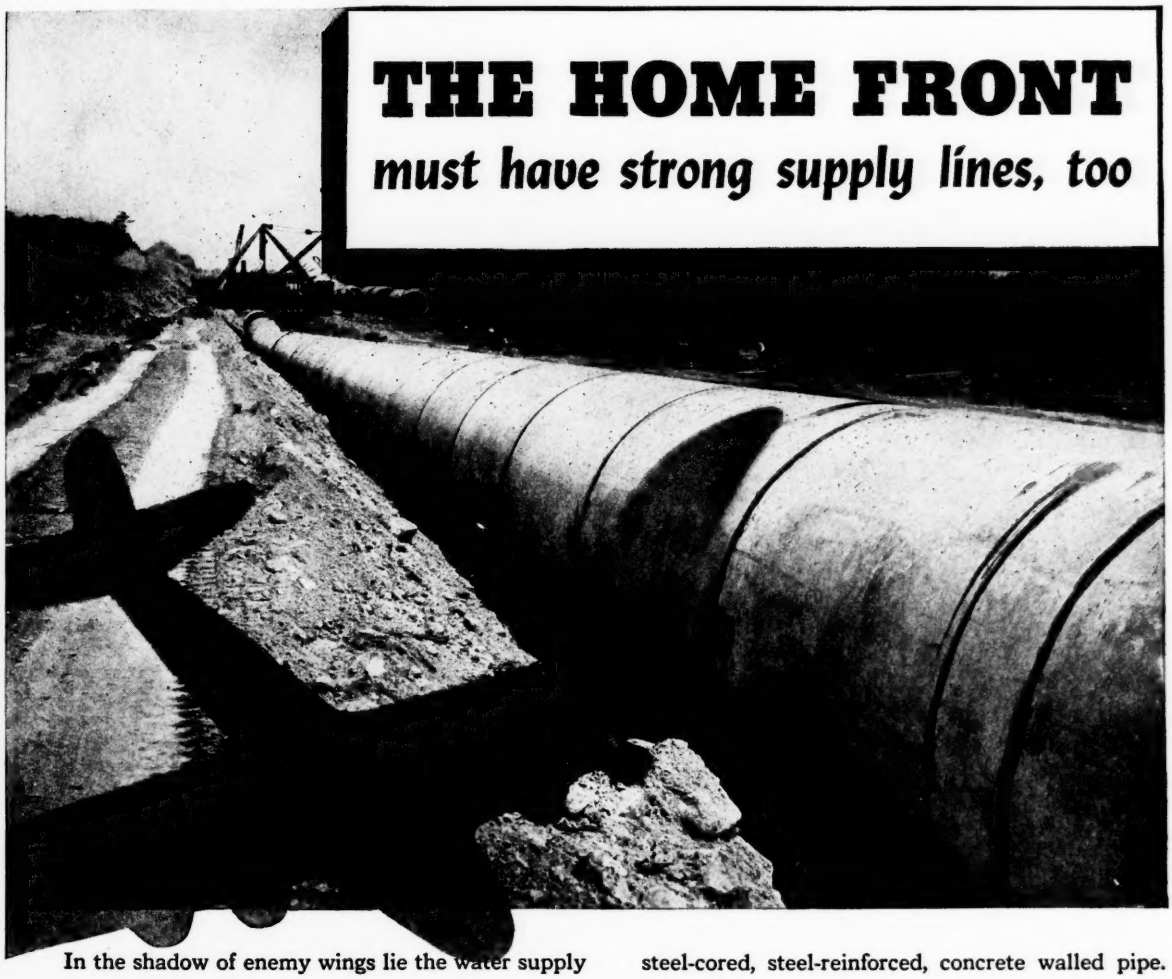
Rex conveyors are seeing extensive service these days, as they have for years past. They no doubt can help you out of many a hole when it comes to increasing capacity. See the Rex man at your convenience. Naturally, orders bearing highest priority distinction take precedence. Address 1718 W. Bruce Street, Milwaukee, Wisconsin.

REX CONVEYORS

CHAIN BELT COMPANY OF MILWAUKEE

Baldwin-Duckworth Chain Belt Division, Springfield, Massachusetts • Worcester, Massachusetts
Rex Conveying and Engineering Products Division, Milwaukee, Wisconsin

REX CHAIN BELT COMPANY



THE HOME FRONT

must have strong supply lines, too

In the shadow of enemy wings lie the water supply lines in a thriving community. First an aerial reconnaissance photograph. Later a target!

Today, on the home front, it is the duty of every responsible official to select the strongest pipe lines under the sun. Lock Joint Reinforced Concrete Pipe is included in the specifications for the majority of all large diameter water pipe contracts in the United States. Resistance to great shock, heavy loads and vibration is built into each length of this steel-cored, steel-reinforced, concrete walled pipe. Ability to withstand earth movement and deformation is assured by the self-caulking flexible expansion joints. The construction and design make Lock Joint Pipe your safest, surest investment today—yet Lock Joint Pipe uses less of those essential materials so necessary to our War Effort. Whether your project is large or small, your 'phone call, telegram, cable or letter to any of our offices will bring a prompt reply.

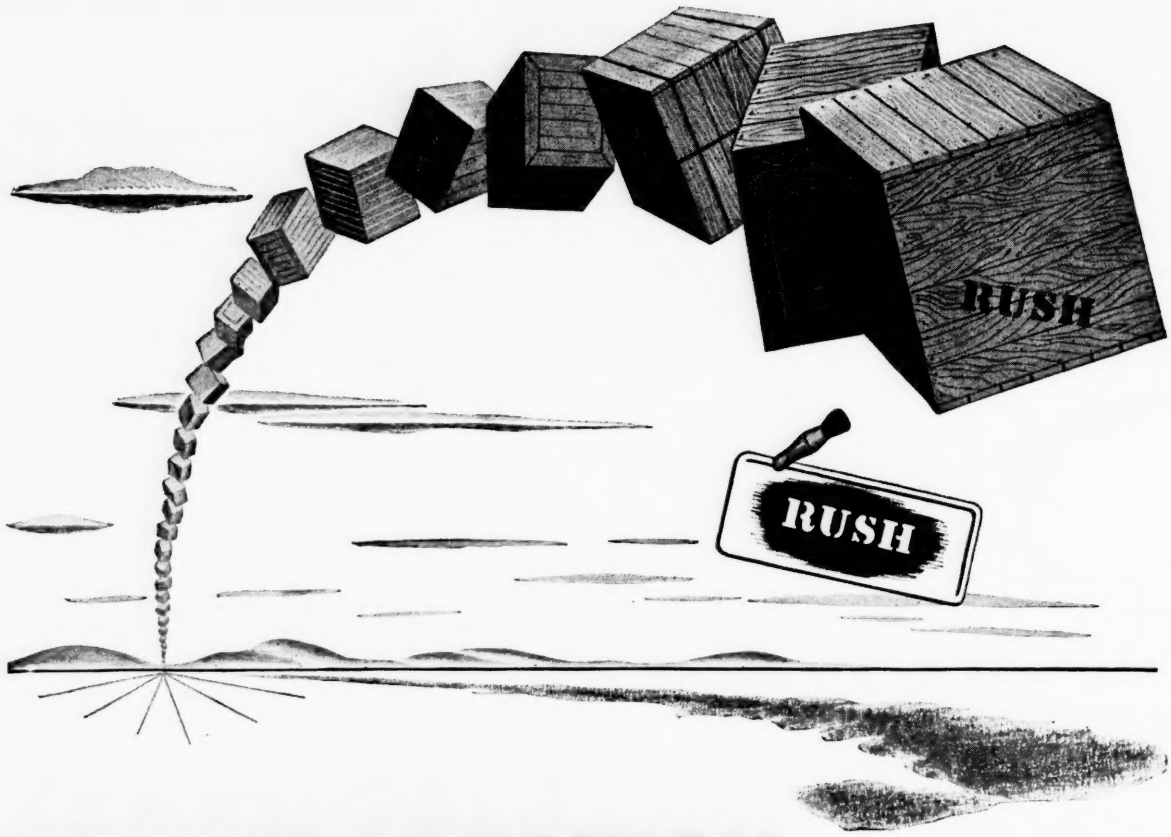
LOCK JOINT PIPE COMPANY

Established 1905

AMPERE, NEW JERSEY

Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo.
Rock Island, Ill. • White Plains, N. Y. • Valley Park, Mo.
Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

SCOPE OF SERVICES *Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.*



TRANSPORTATION
On the Double

Spurred on by the war needs of the nation, production from the oil fields, forests, mines, and farm lands of the South is flowing in mounting volume to refineries, mills and factories.

As Southern industry and agriculture increase their output, Southern transportation has a steadily bigger job to do. Tonnages moving over the South's thousands of miles of railways, its network of highways, its waterways, are growing every day.

Bethlehem steels have long contributed in the development of every form of Southern transportation.

Powerful locomotives built of Bethlehem steels, as well as rails, switches and other track accessories by Bethlehem, are used on railways that fan out into every corner of the South. Likewise, in fleets of highway carriers; in vessels that travel the waterways of the South; in Southern highways and highway bridges, Bethlehem steels are playing a major role.

The strategic location of Bethlehem's steel-making plants is an important factor in this company's service to Southern industry and transportation.

BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

NO CHANCE FOR "PASSING THE BUCK"

When the Same Manufacturer Furnishes Both ROOF INSULATION and BUILT-UP ROOF!

Centralized Responsibility Insures Satisfaction with

CELOTEX VAPOR-SEAL ROOF INSULATION *and* CELOTEX BONDED BUILT-UP ROOFS

ROOF trouble and roof insulation trouble are so closely related that either manufacturer may try to "pass the buck" to the other—but not when you use Celotex Bonded Built-Up Roofs *with* Celotex Vapor-seal Roof Insulation. *Because the same manufacturer furnishes both!*

Your guarantee of ten, or fifteen, or twenty years of expense-free service from Celotex Bonded Built-Up Roofs is backed by the National Surety Company's *written contract.*

And when you use Celotex Vapor-seal Roof Insulation, you are getting (1) high efficiency, indicated by a coefficient of conductivity of 0.30, (2) an *American* product, made by Americans from materials produced in America, insuring availability, and, (3) the experience of a manufacturer responsible for producing more structural insulation than any other in the business!

End the possibility of "buck-passing". Talk to your Celotex Roofing Contractor *first.*

CELOTEX

REG. U. S. PAT. OFF.

VAPOR-SEAL ROOF INSULATION
BONDED BUILT-UP ROOFS

THE CELOTEX CORPORATION • CHICAGO

XUM

Is your biggest worry OVERHEAD?

Today, when every order is "RUSH!" and time out for repairs cannot be spared . . . there's a simple way to relieve yourself of worry about roof maintenance . . . turn the whole job over to Barrett, and a Barrett Specification* Roof!

That's how thousands of large plants—new and old—all over the country have solved this vital problem.

Because . . . since 1854 . . . Barrett coal-tar pitch and felt roofs have demonstrated their ability to stand up against the weather for 20, 30 and 40 years, or even longer, without repairs!

So . . . if you are putting up a new plant . . . or expanding your output by opening up unused sheds and warehouses . . . call on Barrett or your local Barrett Approved Roofer. He's an experienced roofing expert, chosen for his know-how in handling roofing problems of all kinds.

He'll be glad to take the roofing problem off your shoulders "for the duration" . . . and for many years to come.

Barrett Specification* Roofs

*Trademark Reg. U. S. Pat. Off.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK

2800 So. Sacramento Ave., Chicago, Ill. Birmingham, Alabama

ROLL ROOFINGS *SHINGLES & SIDINGS* *ROCK WOOL INSULATION* *PROTECTIVE PAINTS & CEMENTS*

XUM

WAR–AND RESEARCH

Research will win this war . . . through the development of new offensive weapons.

Research will determine the course of post-war expansion.

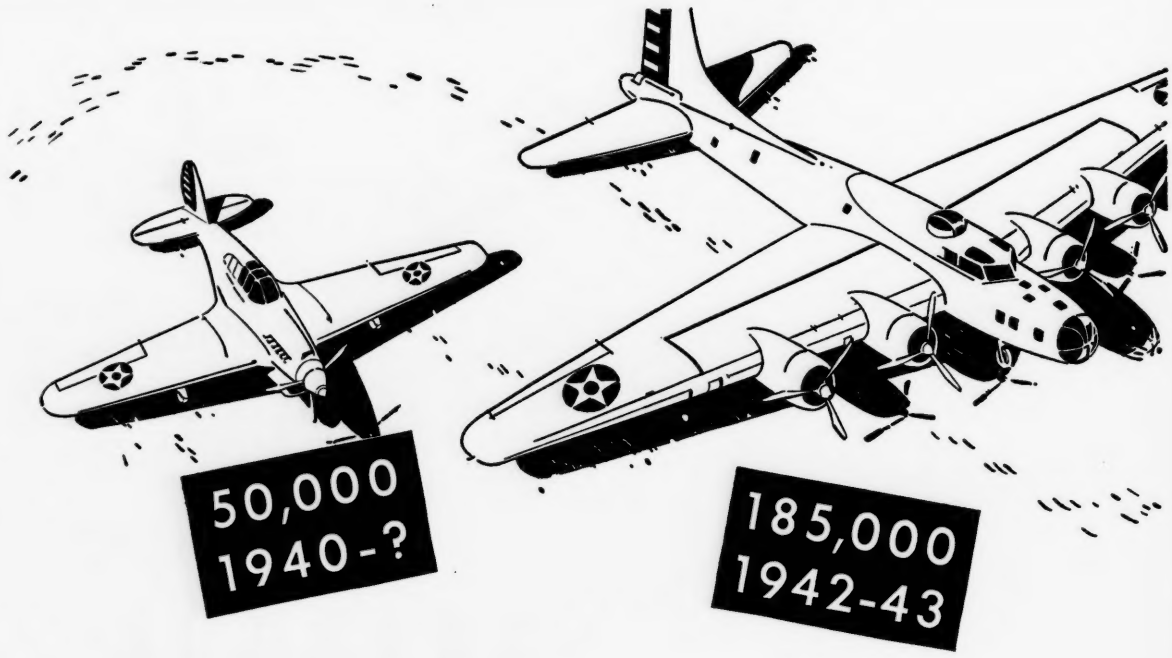
Research laboratories . . . well-planned, -built and -equipped by Ferguson. . . are designed not only for the present emergency but also for profitable post-war use.

The H.K. Ferguson Co.

ENGINEERS AND BUILDERS

CLEVELAND • HOUSTON • NEW YORK

Official photograph U. S. Navy



NUMBERS

are only one-third the story

The *second* chapter is *size.*

Those 50,000 planes set up as a goal by the President, almost exactly two years ago, called for an average of 6,000 pounds of aluminum per plane.

Today the country is thrilled to know that the schedule calls for 60,000 planes this one year of 1942. The same schedule calls for 125,000 planes to be built in 1943.

But: These 185,000 planes will require an average of 12,000 pounds of aluminum per ship—almost *twice as much aluminum per plane today* as the makers of aluminum had to provide for each plane only two years ago.

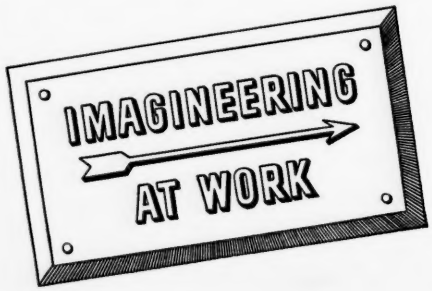
The job is being done. That there is so much aluminum so soon means that it is coming largely now from new large plants we planned as early as 1938 and started building in 1939.

The *third* chapter is *price.* Alcoa aluminum ingot is actually 25% lower in price than before the war. This is one ceiling that moved *down.*

More planes, bigger planes, and cheaper aluminum to make them with! It is what we mean by Imagineering: audacious planning, courageous building, unrelenting production, and an *eye on costs* all the time.

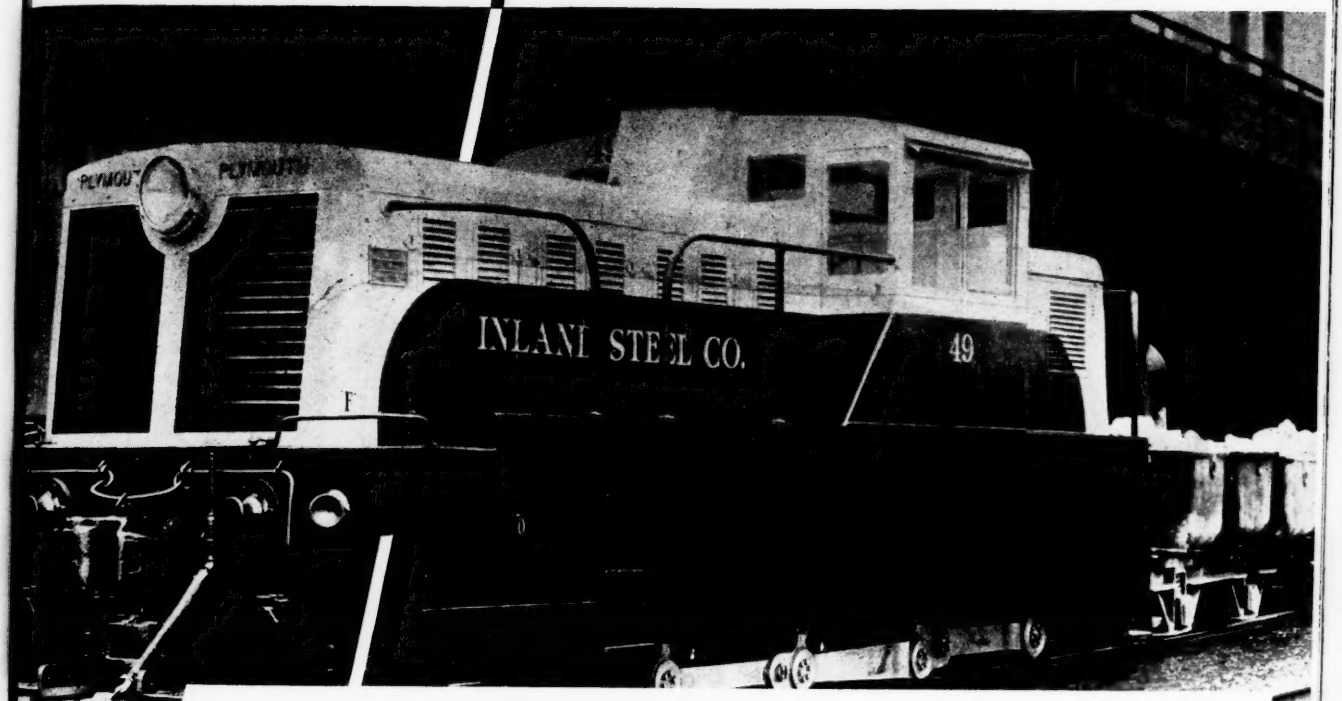
Imagineering is a word for the future, too. There is time, even today, to let your imagination soar into the future, to be curious about what this cheaper aluminum can do in your business. We might even have some answers, for us both to file away, for future reference—

ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM

Keep 'em Rolling...



WITH FLEXOMOTIVES*

Operating records in many of the nation's steel mills show that Plymouth Flexomotives are keeping the loads rolling which are so vital to defense. Flexomotives insure the highest efficiency in handling the precious tons of ore and steel. Plant superintendents praise Flexomotive Performance . . . they value the 98% availability; low operating cost; Flexomotive's ruggedness to stand up under 24 hour service, seven days a week. And best of all, they like the way in which the heavy loads are handled . . . smoothly, efficiently and economically.

Plymouth Flexomotives are designed, engineered and built to give top performance under heavy duty. They'll deliver the loads when and where you want them. Let us show you how Flexomotives will lick your toughest haulage problems. Get the record . . . today.

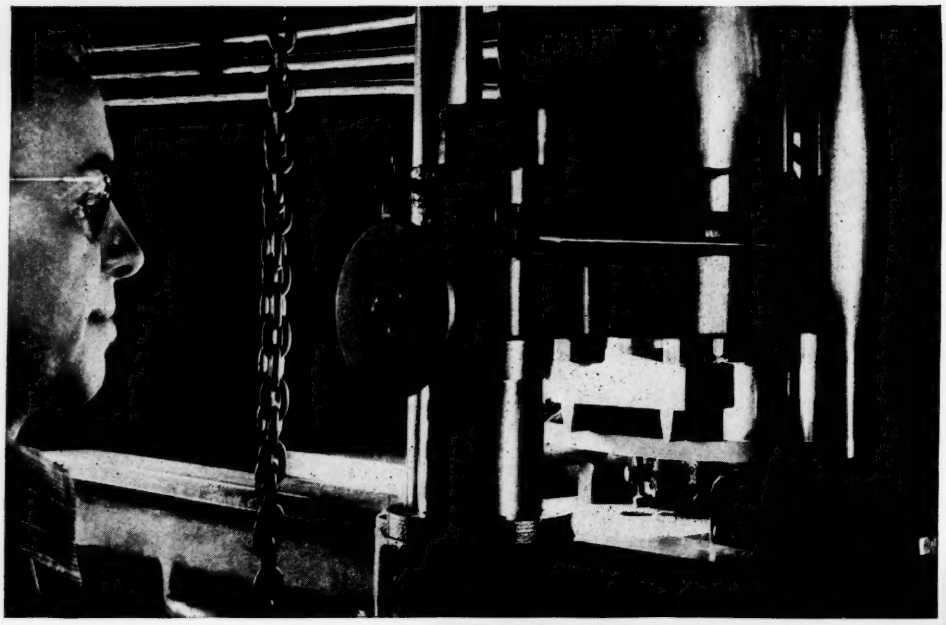
*Reg. U. S. Pat. Off.

There's a Flexomotive Working Near You . . .

ASK US ABOUT IT SO YOU CAN SEE THIS NO. 1 PERFORMER OF THE INDUSTRY IN ACTION!

PLYMOUTH LOCOMOTIVE WORKS

DIVISION OF THE FATE-ROOT-HEATH CO., PLYMOUTH, OHIO, U. S. A.



* The "Talbot Strip Test," illustrated above, is an acceptance test for cast iron pipe. The modulus of rupture and secant modulus of elasticity are determined from this test, made on a strip cut from the wall of a pipe. It is one of the routine tests made by this Company to insure that the quality of its pipe meets or exceeds the requirements of accepted standard specifications for cast iron pipe. *United States Pipe and Foundry Co., General Offices: Burlington, New Jersey.* Sales Offices in Principal Cities.

*** One of a series of controls in operation at each of our plants, beginning with inspection and analysis of raw materials and ending with tests of the finished product, all subject to the central control of our headquarters staff at Burlington.**

U.S. cast iron PIPE

Centrifugally or Pit Cast for water, gas, sewerage, drainage and industrial services.

Have you tried Scully?

WE are not magicians, but we will do everything within our power to help you get the materials you need. We have stocks of many steels on hand, also tools, machinery and other equipment.

Be sure to try Scully — see our phone numbers below. Cut out the number of the warehouse nearest you and paste it in a handy spot.

Structural material
Plates, various qualities
Floor Plates
Sheets: Hot Rolled, Cold Rolled, Galvanized, etc.
Bars (all shapes): Hot Rolled Carbon and Alloy grades
Hot Rolled Strip Steel
Spring Steel · Tool Steel
Drill Rod
Cold Finished Bars, Carbon and Alloy grades
Wire
COR-TEN and MAN-TEN Shapes, Sheets and Plates
Abrasion-Resisting Sheets and Plates
Eaves Trough, Conductor Pipe
U·S·S Stainless Steel and Stainless products
Expanded Metal
Rails
Boiler Tubes
Rivets, Bolts, Nuts, Washers
Dardelet Rivet and Machine Bolts
Nails
Welders and Welding Accessories
Chain
Clamps
Flanges
Expanders, etc.
Hoists, Shears, Rolls, Punches, Cut-Off Machines, Saws, Nibblers, etc.

CHICAGO	**BRUnswick 2000**
Teletype CG. 605	
BALTIMORE	**GIlmore 3100**
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BOSTON	**STAdium 9400**
CLEVELAND	**HEnderson 5750**
Teletype CV. 153	
PITTSBURGH	**CEdar 7780**
Teletype PG. 475	
ST. LOUIS	**MAin 5235**
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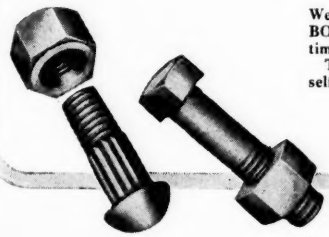
	BErgen 3-1614 - REctor 2-6560

IN STOCK! DARDELET "RIVET-BOLTS"



We can offer immediate shipment of both Dardelet "RIVET-BOLTS" and Dardelet Machine Bolts. These bolts save valuable time and labor and assure permanently tight joints.

The Dardelet "RIVET-BOLT" is a ribbed bolt with Dardelet self-locking thread, and is widely used for field erection of structural steel. Has recessed nut. Bolt is driven in and nut is applied with wrench. Economical and strong.

The Machine Bolt with Dardelet self-locking thread is for general use where vibration is present.

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SCULLY STEEL PRODUCTS COMPANY

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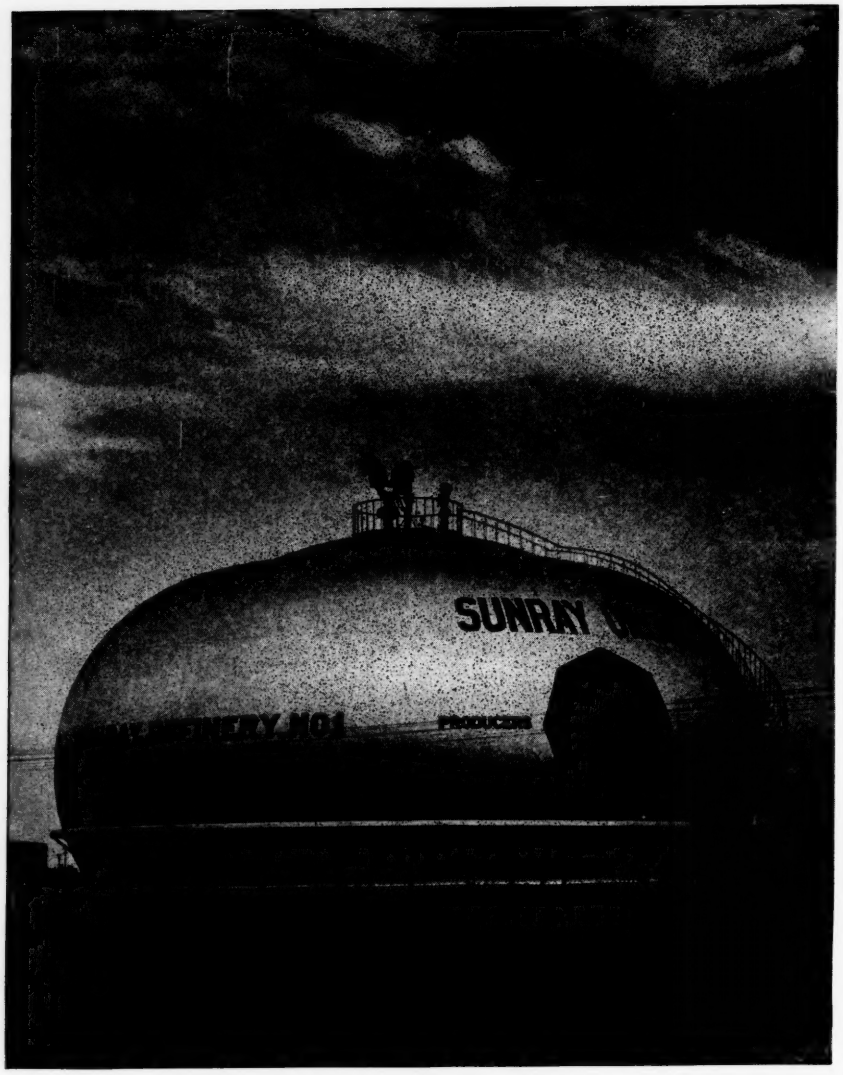
UNITED STATES STEEL



HORTONSPHEROIDS help speed production of aviation gasoline and other motor fuels

Hortonspheroids at oil refineries all over the country are being utilized to step up the production of aviation gasoline and high grade motor fuels.

Excessive evaporation losses occur when natural gasoline for blending purposes or volatile products for making aviation gasoline are handled and stored in ordinary tanks. These excessive losses are prevented by handling volatile products in Hortonspheroids, like the 25,000 bbl. unit above at an Oklahoma refinery, or in Hortonspheres if pressures of from 30 to 100 lbs. per sq. in. are required to prevent the tanks from venting.

Finished gasolines are also stored in large capacity Hortonspheroids to prevent volumetric loss as well as deterioration in quality.

HORTONSPHEROIDS — Smooth spheroids built in capacities of 2,500 to 40,000 bbls. to store volatile liquids under pressures up to 35 lbs. per sq. in. Noded spheroids built in capacities of 20,000 to 120,000 bbls. for 2½ to 20 lbs. per sq. in. Bulletin entitled THE HORTONSPHEROID contains general information on both types.

HORTONSPHERES — Built in capacities of 1,000 to 20,000 bbls. to store volatile liquids under 20 to 100 or more lbs. per sq. in. pressure. Also from 20 to 65 ft. in diam. to store gases under 20 to 100 or more lbs. per sq. in. pressure.

HEMISPHEROIDS — Built in capacities up to 20,000 bbls. for storing liquids at low pressures.

PRESSURE VESSELS — Refinery towers or plain pressure vessels built at Birmingham to Paragraph U-68 of ASME Code with joints x-rayed and stress-relieved and Paragraph U-69 or API-ASME vessels at other plants.

WIGGINS PONTOON ROOFS — Installed on new or existing oil tanks. Ride directly on surface of liquid in tank. Used to reduce fire hazard and evaporation loss on working tanks. Bulletin entitled THE WIGGINS PONTOON ROOF contains complete details.

WIGGINS BREATHER ROOFS — Prevents evaporation loss from standing oil storage tanks kept full or nearly full. Installed on new or existing tanks. Recommended for 60 ft. diam. or larger. Bulletin describes construction and operation.

WIGGINS BALLOON ROOFS — Flexible roof like Breather except with greater capacity. Used for smaller sizes, slow working tanks and to connect to other tanks. Complete description in Bulletin entitled WIGGINS BREATHER ROOF AND WIGGINS BALLOON ROOF.

ELEVATED STEEL TANKS — Provide gravity water pressure for general service or fire protection. Bulletin entitled FIRE PROTECTION contains general data and tables of standard capacities from 5,000 to 500,000 gals. for ellipsoidal-bottom and hemispherical-bottom types. Bulletin entitled RADIAL-CONE BOTTOM ELEVATED WATER TANKS contains illustrations of tubular and structural column radial-cone tanks in large capacities. This design used for capacities of 500,000 to 2,000,000 gals. for municipal service with 25 to 35 ft. range in head.

STORAGE TANKS—Flat-bottom tanks with cone or special roofs for the storage of oil, water or other liquids. TECHNICAL BULLETIN NUMBER 11 contains complete table of standard barrel capacities for oil tanks, standard gallon capacities for water tanks and A.P.I. designs.

STEEL PIPE—Welded steel pipe 36-in. diam. or larger in standard lengths up to 60 ft. Penstocks, hydraulic pipe lines and tunnel liners built to special designs.

SURGE TANKS — Johnson differential surge tanks, described in booklet sent on request, or simple surge tanks.

CHICAGO BRIDGE & IRON COMPANY

Birmingham .....1530 North Fiftieth Street
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San Francisco .....1040 Rialto Bldg.
Philadelphia .....1619-1700 Walnut Street Bldg.
Detroit .....1510 Lafayette Bldg.
Havana .....402 Edificio Abreu
Washington .....632 Washington Bldg.

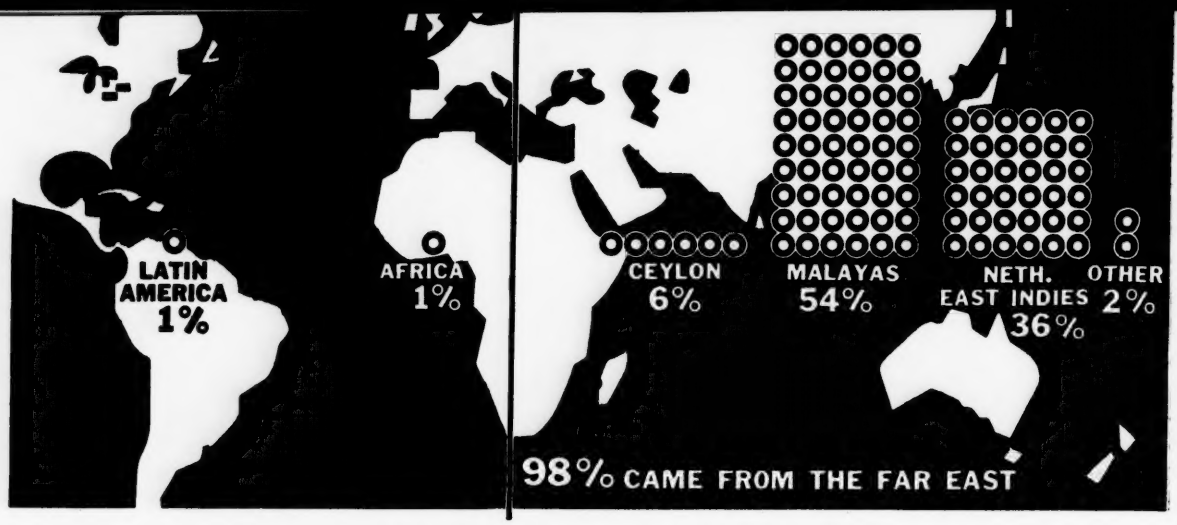
Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

OUR FLAG

This flag which we honor and under which we serve is the emblem of our unity, our power, our thought and purpose as a nation. It has no other character than that which we give it from generation to generation. The choices are ours. It floats in majestic silence above the hosts that execute those choices, whether in peace or in war. And yet, though silent, it speaks to us—speaks to us of the past, of the men and women who went before us and of the records they wrote upon it. We celebrate the day of its birth; and from its birth until now it has witnessed a great history, has floated on high the symbol of great events, of a great plan of life worked out by a great people. We are about to carry it into battle, to lift it where it will draw the fire of our enemies. We are about to bid thousands, hundreds of thousands, it may be millions, of our men, the young, the strong, the capable men of the nation, to go forth and die beneath it on fields of blood far away—for what? For some unaccustomed thing? For something for which it has never sought the fire before? . . . For some new purpose, for which this great flag has never been carried before, or for some old, familiar purpose for which it has seen men, its own men, die on every battlefield upon which Americans have borne arms since the Revolution?

These are questions which must be answered. We are Americans. We in our turn serve America, and can serve her with no private purpose. We must use her flag as she has always used it. We are accountable at the bar of history and must plead in utter frankness what purpose it is we seek to serve.

WOODROW WILSON
FLAG DAY ADDRESS
WASHINGTON, D. C., JUNE 14, 1917.



Sources and percentages of the one million long tons of rubber imported by the U.S. in 1941.

THE SOURCE OF OUR RUBBER

IT is 3,392 submarine-infested miles from Para, Brazil, to the port of New York and it is 500 miles more to Akron, Ohio.

It is 9,058 miles from Singapore to the tire factories of Los Angeles, but the boats don't run any more. Before we get rubber from Malaya we'll have to send a million men or more half way around the world; they'll have to go to Java, Borneo, Cebu and Formosa; they'll have to go to Palambang, Mandalay, Panay and Tokyo.

Rubber was old when Columbus visited the new world and his men were amazed at black rubber balls with which natives played. Hundreds, maybe a thousand years before, the Indians of South and Central America had coated their capes with rubber, they had waterproofed shoes with it and they had even made bottles by dipping clay moulds into raw rubber.

Rubber remained little more than a curosity for three hundred years. It was used as a waterproofing material, but it cracked in cold and had a noxious odor when warm and achieved no great popularity. In the 1830's it was discovered that if sulphur were mixed with crude rubber and heated, the rubber retained its elasticity over a wide range of temperatures. This "vulcanizing" discovery was claimed for at least four men; it seems likely that each one contributed something. With vulcaning, rubber became an industry; with the automobile it became a great industry.

The principal constituent of rubber is caoutchouc, derived from "cahuchu," the native name for the principal rubber tree. Numerous trees, plants and shrubs produce caoutchouc, including guayule and varieties of milkweed. The greatest source however is a tree known as Hevea Brasiliensis. The product of this tree is 90 per cent caoutchouc. No other tree or plant compares in percentage.

The Hevea tree often grows to a height of over 100 feet and the trunk is sometimes 12 feet across. Each tree bears both male and female flowers. There are three seeds in each capsule, which explodes on ripening, sometimes ejecting the seeds 20 yards. The tree will grow in almost any well-drained soil, but it requires an annual rainfall of 100 inches and a temperature range of from 70 to 90 degrees.

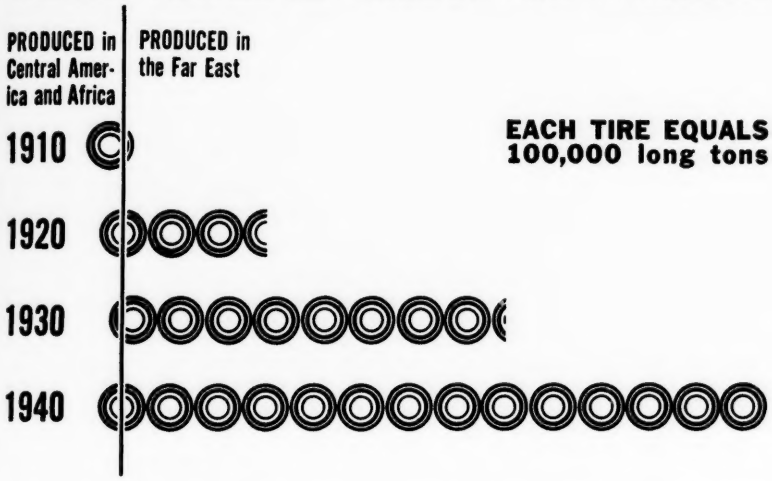
90 per cent of our rubber supply cut off by Japanese occupation of Malaya & Borneo

The Hevea, as its full name indicates, is a native of Brazil and for years Brazil held a rubber monopoly. In 1873 2,000 seeds were smuggled out of Brazil, but only 12 germinated and none of the trees thrived. In 1876 Henry Wickham, later Sir Henry, arranged to have 70,000 seeds taken to the Kew Botanical Gardens in London. Hothouses were emptied of other plants and in two months 2,000 plants were growing. The rubber monopoly was broken and rubber trees were transplanted to the rainy lands of Ceylon, India, Malaya and the East Indies—half way around the world.

In Brazil, natives roamed jungles to tap the trees. In the east, however, trees were set out in plantations where they would be given regular care, where they could be fertilized and where scientific studies for the increase of the yield were made.

Rubber is obtained from the trees by a curious process. Between the bark and the trunk of the tree is a layer of cells about as thick as a sheet of paper, known as the cambium. Next to the cambium, in the soft part of the bark, are tubes in which flows latex, the milky caoutchouc-bearing liquid. A series of cuts are made in each tree, several inches apart. On some plantations, the cuts run spirally down the trunk; in others they are made in huge V's. Care must be

WORLD TOTALS for PRODUCTION of RUBBER



taken to sever the latex tubes without cutting the cambium. If the cambium is cut replacement growth is slowed.

Every other day, in well-managed plantations, workers shave the lower edge of each cut, stimulating the flow of latex. The latex is gathered in cups and taken to plants where, under various types of treatment, the globules of rubber are separated, worked and dried. Some of it is dried in smoke. Some of it, worked thinner, is dried in air. The former is called sheet rubber; the latter, crepe rubber. In Brazil, rubber is often dipped on huge paddles, which are turned in smoke. Constant dipping builds the rubber up into balls as the process continues.

World production figures for 1940 tell the story:

	Long tons
Far East	1,353,052
Amazon Valley	17,661
Africa	16,314
Mexico, guayule	3,634
Total	1,390,661

The briefest glance at these figures shows that all but a few shiploads of rubber were produced in Malaya, Sumatra, Java, Borneo, Ceylon and the other lands of the Middle East. Some synthetic rubber was being made in Germany, Russia and other countries but production figures are not available.

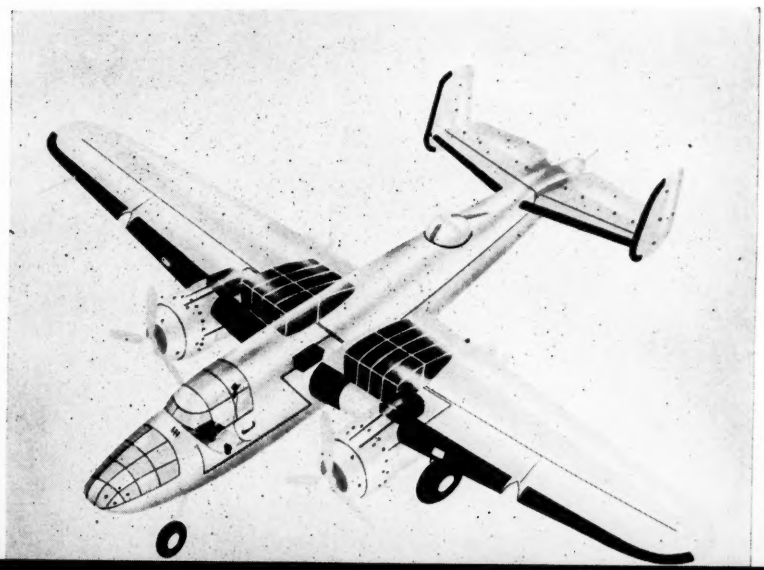
The United States has been and still is the world's greatest consumer of rubber. In 1940, of the total supply grown, 1,390,661 long tons, we imported 818,242 long tons. We got it as follows:

	Long tons	*%*
Malayas	421,099	51.4
Netherlands East Indies	287,624	35.1
Ceylon	55,001	6.8
Other East Indian sources	36,144	4.5
Latin America	11,061	1.3
Africa	7,313	.9

Imports in 1941 are said to have exceeded one million long tons and in the first nine months of 1941 actual imports totaled 763,987 tons or almost 25 per cent more than was imported during the comparable period of 1940. Of this 763,987 tons valued at $311,318,243, only 3,535 tons were guayule.

Rubber is slow growing. It grows slower than wars are won.

Below—An artist's drawing of an U. S. medium bomber with the shaded portion showing the use of rubber or synthetic rubber in the construction of aircraft and its accessories. In addition, more than eight miles of rubber covered wire and cable is used in a plane of this size and type. ***[Courtesy of B. F. Goodrich Co., Akron, Ohio.]***



Sir Henry Wickham got his 70,000 seeds in 1876, but the Far East produced only 2,879 long tons in 1906. In that year, the Amazon Valley produced 34,274 long tons and Africa produced 20,539 long tons. In that year, too, Mexico produced 1,624 tons of rubber from guayule.

Production of Far Eastern rubber rose steadily. With few fluctuations caused by price drops, production rose to 10,979 long tons in 1910; 116,370 in 1915; 305,106 in 1920; 488,825 in 1925; and 802,082 in 1930. More than 1,000,000 long tons were produced in 1934.

The Amazon Valley produced 41,619 long tons in 1912 and never produced that much again. Production dropped down to 6,420 tons in 1932—a year that the Far East gave the world 700,000 tons. Price fixing and world depression had much to do with it, of course, but whatever the cause, those were the figures.

African production went up and down over the years, never topping the 1906 figure and falling to 1,751 long tons in 1932.

Guayule production fluctuated between 9,542 long tons in 1910 to almost nothing in 1931, '32 and '33.

Look at the map. Mark Malaya, the Dutch East Indies, Java and the other Middle Eastern lands where the temperature ranges from 70 to 90 degrees and there is 100 inches of rainfall each year. Look at the map and see what happened when the Japs took Malaya and Borneo: almost 90 per cent of our rubber was cut off. See what happened when Japanese activity

(Continued on page 54)

TIMBER TAKES ITS PLACE IN CONSTRUCTION

By

H. C. Berckes

Secretary-Manager
Southern Pine Association
New Orleans, La.

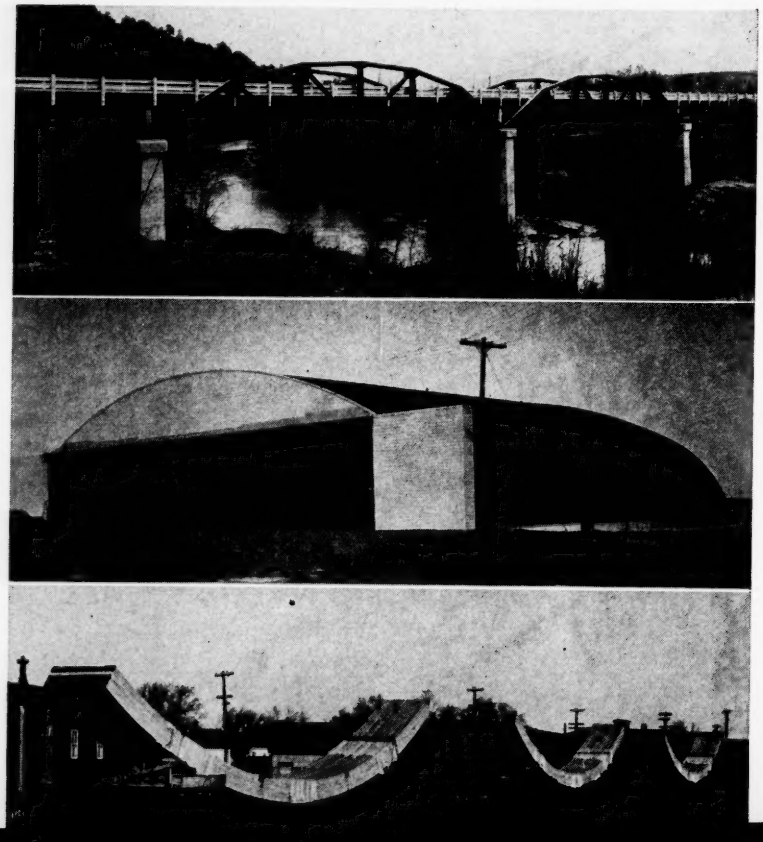
EVERY American is today feeling the effects of World War II. There is a shortage of materials—food is beginning to be rationed—labor is getting scarcer. "C'est la guerre" the French used to say—and that expression describes our situation today.

Already the attention of research laboratories is being intensified to develop additional substitutes for rubber; scientists are thinking about ways to solve the sugar problem. "Ersatz" articles are now on the market to take the place of the real thing needed to win the war. And, we'll see more of these as the demands of the war machine increase and reach into the supplies of everyday articles associated with the American way of life.

When America began to build the world's greatest arsenal of democracy, it was realized that steel, steel, and more steel was needed for guns, tanks, planes, and ammunition and for a myriad of other destructive purposes. The old law of supply and demand was given a severe jolt. An unprecedented demand developed overnight for building materials—far greater than the available supply. It was easy to understand, therefore, why those in charge of the construction of our war machine put steel and other metals on the critical list and said, "no more steel for civilian use." Everybody understood the reasons why this order was necessary, but it brought the logical followup question, "What about the structures, the bridges, warehouses, the hangars that had to be built and which required so much steel?"

The answer was found in what is now recognized as an agricultural product—wood. With nearly 20,000 producing units in the country—more than 10,000 of which are located in the South—this industry met the challenge of producing material that would satisfactorily answer the purpose. It is no uncommon sight today to see long span roof trusses in warehouses and highway bridges, which until a few years ago no engineer in this country thought possible except in steel. They are now being constructed of lumber, even though this practice was followed in Europe for many generations.

The Timber Engineering Company of Washington, D. C., has developed and successfully merchandised metal ring connectors to strengthen the joints in bridges, wood towers, and other types of structures, thus making possible the utilization of smaller size wood members. The Beech Aircraft Corporation at Wichita, Kansas, found the answer in wood to their construction problem by using wood trusses as long as 140′, supported on columns 40′ high. The weight which each column supports and the size of the column are such that individual timbers could not be expected to be available. Here's how the engineers on that job solved their problem. They used columns built of 2″ lumber glued together. It was found that the glue was sufficient to make these small units act as a strong single member—a practice now recognized as an advancement



Typical of the uses now being made of timber in place of steel are the following: Top—The Crabbe Road Bridge, 10 miles north of Tuscaloosa, Ala., where each span made of wood is 90 feet long. Center—An airplane hangar for Northwest Airlines at Fargo, N. D., measuring 152 ft. by 120 ft. has wooden arch spans 152 ft. long spaced 10 ft. apart. Bottom —A seven car shipment of Unit Arches, 112 ft. span, for U. S. Navy drill halls. [Two lower photos by courtesy of Unit Structures, Inc., Peshtigo, Wis.]

in the utilization of wood for every type of construction.

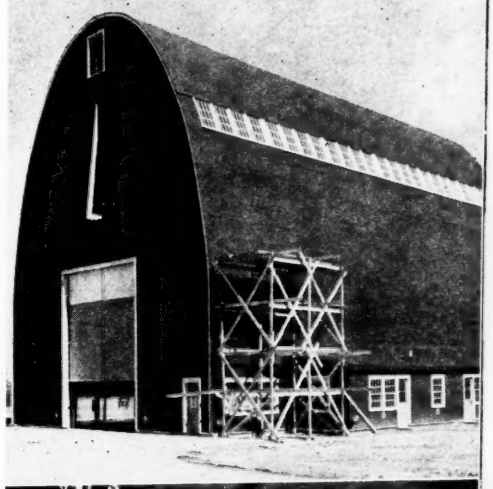
There are several hundred wood frame chapels in the various army camps throughout the country. An interesting thing about these is the fact that there are no columns or posts to obstruct the view at any point within the building. The reason? Laminated arches made up of 1″ lumber glued together provide sufficient strength to support the roof and sides of the building.

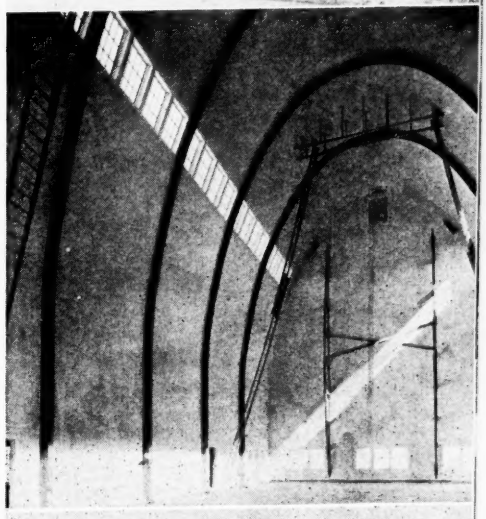
Other uses where steel was formerly thought of as the answer to the building problem are highway bridges and trusses. Today, lumber has been tried and has been found ready to do the job with a high degree of speed, safety, and economy. Typical of a low highway wooden bridge is the one illustrated. This bridge is on the Crabbe Road north of Tuscaloosa, Alabama, and has two 90′ span trusses which combine attractiveness and economy and the full load carrying capacity of a modern highway bridge. A glance at this picture will suggest the amount of steel released to the government for war purposes.

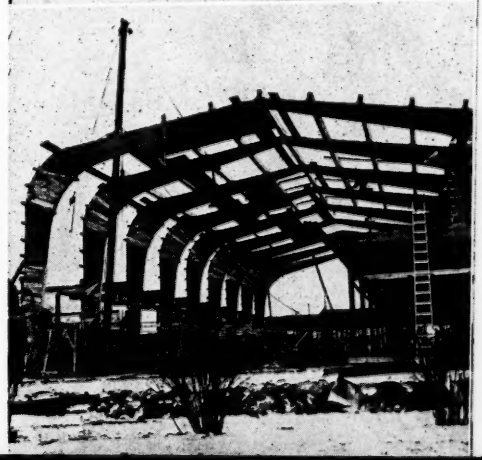
The intricate network of highways in this country call for good drainage. As we think of culverts, we think of a product of steel or concrete for this use. The Armco Company of Middletown, Ohio, well-known for its steel culverts and realizing the shortage of steel, has found an answer in the development of a hexagonal wood culvert, fastened together by hardwood dowels, which requires no critical materials.

Lumber is serving again today in a multitude of uses so the country will be assured of as much of the precious metals as may be needed for the manufacture of fighting tools. Some of the better known uses are offered here for the purpose of illustration. Industrial plants and restricted areas must be kept safe from saboteurs and undesirable visitors. The usual protection is a strong, substantial fence. Steel has been recognized as a safe material for this purpose, but today it can serve a better purpose in guns and ships and tanks. So again the versatility of lumber has been proved. Wood fences can provide safety, especially when barbed wire is added. The Southern Pine Association has prepared a leaflet containing suggested designs of protective industrial fences, and it is expected that many plants will install wood fences to seek protection against intruders.

The use of wood instead of steel is encouraged by the Army wherever possible as is seen in the top picture at right where the frame for an army machine shop building is shown in course of construction in Georgia [photo by courtesy of Maxwell & Hitchcock, Atlanta, Ga.]. An unusual building in which wood was used extensively is the Army Signal Corps laboratory built at Avon, Ky., and shown in the two center pictures: laminated timber arches of 54 ft. span and 66 ft. rise support the roof and sidewalls while the framework between the arch ribs and for the end walls is also of timber construction: note the trusses for bracing the end wall in the lower picture. Bottom — Reception building at Naval Training Station, Great Lakes, Ill., where nine unit "V" type arches were used. [Photo by "Acme News Service." Arches by Unit Structures, Inc.]







Everyone knows that boxes and crates are needed for the shipment of goods, for heavy shells, fuses, cartridges, and other weapons of warfare that will draw heavily upon the products of the forests for boxes and crates. Requirements in this field during 1942 will call for the staggering sum of 6,000,000,000 feet of lumber. Here is an item where wood replaces, not steel, but other materials that are not as plentifully available as lumber or those that cannot match the ability of wood to "take the punishment" involved in handling the shipment of war goods. These wooden boxes range from very small cartons to giant size crates, so large that it is necessary to construct them outdoors.

Of course, when we review the large number of uses for which lumber is called upon to fill the place of steel and other metals, we take it for granted that the Forest Products Industry is doing a patriotic job. That much is true, but at the same time it is fulfilling all of the requirements where lumber has been active, such as in the field of housing, farm construction, garage building, modernization and repair and other jobs of construction so well known to most of us. The remarkable thing about its performance today is carrying the load for other materials and releas-

(*Continued on page 54*)

XUM

War Contracts and Allocations to Southern States Increase $1,234,032,000 During April

War contracts and allocations distributed by government agencies to the southern states for the period June 1, 1940 through April, 1942, totaled approximately $11,687,009,000 compared with $10,453,977,000 at the end of March, 1942. This represents a gain of $1,234,032,000 or nearly 12 percent during April. Totals by states and by government agency for the entire period are shown in the accompanying table.

Major War Supply and Facility Contracts and Allocations, June, 1940, Through April, 1942

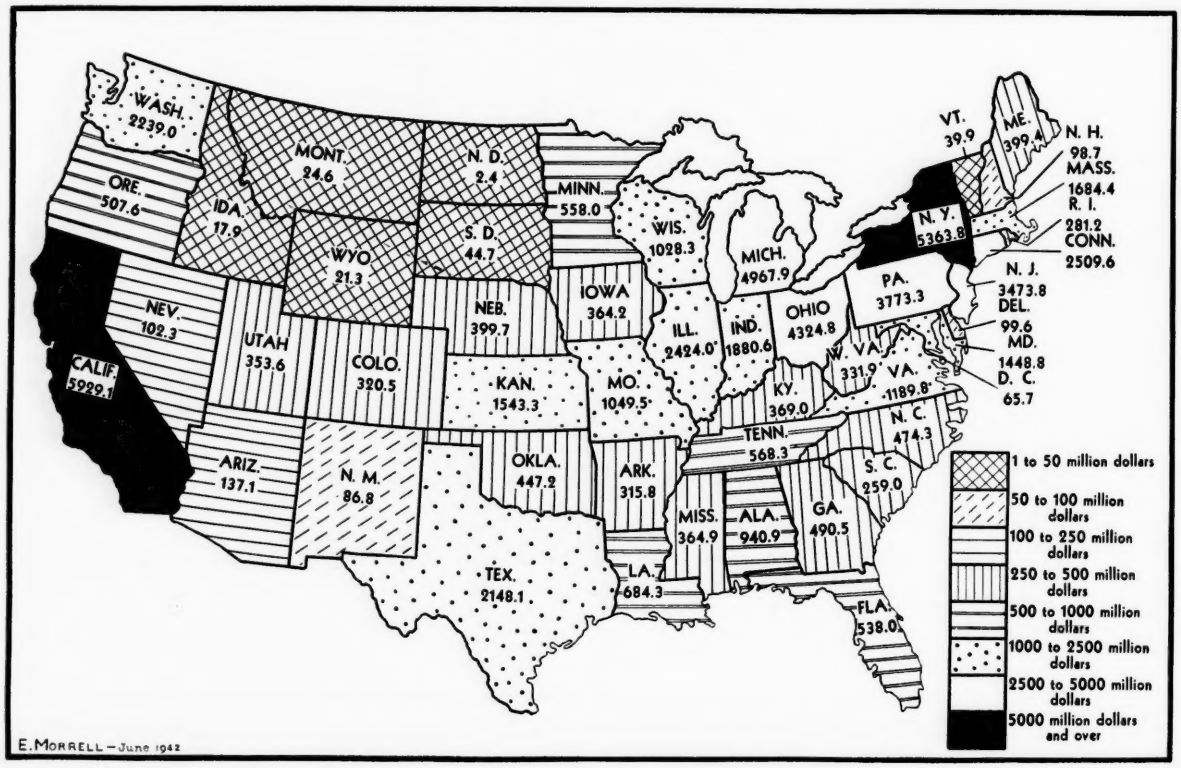
(Thousands of dollars)

State	Army, Navy and Maritime Commission Supply Contracts: Aircraft	Ships	Miscell	Facilities: Industrial	Non-Industrial	Dept. of Commerce C.A.A.	National Housing Agency	Federal Works Agency	Federal Security Agency	Federal Loan Agency R.F.C.	Total
Alabama	.....	266,604	167,031	338,403	127,510	967	11,843	17,161	5,252	5,798	940,871
Arkansas	.....	.....	43,869	185,513	77,797	....	1,414	3,420	3,228	449	315,757
Dist. of Col.	.....	237	1,889	14,607	32,552	....	2,982	12,279	1,062	127	65,735
Florida	.....	158,487	21,279	33,314	272,339	5,834	7,841	27,146	4,511	7,293	538,044
Georgia	.....	99,413	117,506	43,100	202,119	2,800	7,133	12,169	5,071	1,224	490,535
Kentucky	.....	.....	33,670	124,535	153,055	323	2,873	9,719	4,353	40,473	369,001
Louisiana	68,496	119,114	51,120	242,792	174,371	1,955	4,478	15,124	4,002	2,782	685,286
Maryland	580,211	336,129	234,565	168,396	72,818	....	16,878	12,723	3,221	15,710	1,448,752
Mississippi	.....	118,983	21,661	59,332	143,431	1,430	1,154	10,874‡	4,468	3,477	364,944
Missouri	105,063	905	392,188	392,684	119,155	310	3,688	28,526	4,928	2,031	1,049,478
North Carolina	.....	95,042	99,315	21,508	228,727	587	8,060	15,475	4,873	518	474,280
Oklahoma	160,710	.....	34,183	143,061	94,660	768	1,332	7,574	4,629	325	447,242
South Carolina	.....	10,800	79,468	36,683	94,397	2,351	7,527	24,666	2,924	140	258,956
Tennessee	35,899	14,030	128,603	186,734	186,060	253	2,526	8,514	4,934	649	568,317
Texas	294,623	235,760	186,446	730,741	628,432	4,872	13,151	40,883	11,273	1,77‡	2,148,113
Virginia	.....	487,911	69,893	198,999	352,031	112	44,989	29,428	4,273	271	1,189,783
West Virginia	.....	18,920	66,974	221,484	1,524	....	1,364	16,978	4,591	80	331,915
South	1,245,002	1,962,335	1,749,660	3,141,886	2,960,978	22,562	139,223	292,659	77,593	83,121	11,687,009*
United States	15,288,996	7,224,365	17,743,844	12,131,057	7,478,144	50,031	400,149	756,857	245,434	955,605	62,300,535*

* Includes $26,053,000 for the United States under the Farm Security Administration of the U. S. Dept. of Agriculture for defense housing; of this, $10,928,000 was for the South—Ala., $302,000; Ark., $67,000; Md., $8,101,000; Miss., $134,000; N. C., $175,000; Tenn., $115,000; Tex., $158,000; and Va., $1,876,000.

"Aircraft" includes contracts for airframes; airplane engines, propellers, and other parts; and certain related equipment such as parachutes and aircraft pontoons, armament, instruments, and communication equipment are excluded. "Ships" includes contracts for the construction of new vessels of all kinds; the purchase of used ships; and ship conversion, recommissioning, and repair. Propulsion machinery (when separately contracted for), armor, armament, navigation and radio equipment, parts, and materials are excluded.

War contracts and allocations of all Federal agencies through March was* $62,300,535,000. *Of this,* $11,687,009,000 *has gone to southern states. Totals for each state in millions of dollars are shown in the map below.



OPA'S JOB

By
Leon Henderson

Administrator, Office of Price Administration and Director, Office of Civilian Supply.

We are glad to print in full and without editorial revision or change this article by Mr. Leon Henderson which was prepared exclusively for the MANUFACTURERS RECORD.—*Editor.*

MY job as administrator of OPA and director of civilian supplies has two basic purposes: first, to protect the American consumer and American business from the disastrous consequences of inflation; second, to make sure that what we have in the way of civilian goods is distributed in as fair a fashion as human ingenuity can devise.

That's a large order. There are 130,000,000 American consumers. There are literally hundreds of thousands of retailers, tens of thousands of wholesalers and distributors, other thousands of manufacturing plants engaged in the tremendously complex enterprise of supplying the nation with all the multifarious things that it needs and uses.

What we do in OPA affects every single American—the housewife in Dubuque, the corner groceryman in Chicago, the manufacturer of steel plates in Pittsburgh and the purveyor of hair tonic in San Diego. Not one among us has not felt the impact of OPA's purposes and program as it has developed to date. Not one among us will escape the pressures of what we at OPA may have to institute in the way of further rationing and further controls of rent and prices as the war moves ahead.

So far the logic of events—and that nowadays means the stern logic of war—has led OPA to take three major steps.

One has been the institution, for the first time in our history, of general maximum prices on almost every commodity or service of American business. That step was designed—and has—called a halt to inflationary price rises that began almost immediately with the outset of war abroad in 1939 and extended through practically all levels of enterprise.

Second there has been launched, again for the first time in our history, a program of rationing which has so far extended to six familiar commodities — tires, automobiles and trucks, typewriters, sugar and, in the eastern states, gasoline. That step was designed—and has —called a halt to excessive drains on our stocks brought about by the demands of war, the loss of vital supply areas, strained transportation and a certain amount of near-sighted hoarding by individuals and business.

Third has been to establish, also for the first time in our history, maximum rentals in defense areas. That step was designed—and has —called a halt to sharply inequitable rises in rents that had been taking place in vital manufacturing areas.

Those three steps are for the book. They are history.

All three have been taken because, we, as a nation, had read and made note of another book—the record of our experience in the last war. Writ large and plain in that history are two experiences. One is the experience of inflation during the war and the post-war period. The other is the experience of deflation after the war.

With respect to combatting inflation we made two big mistakes during World War I. They can be summed up in a somewhat time-tarnished but still telling phrase: "Too little and too late." It was not until March, 1918, that the government launched a full-fledged price control program. Moreover, by the time of the Armistice, only 42% of 1,366 typical commodities were controlled.

As a result wholesale prices doubled. During the first two years of war the all-commodities index of the Bureau of Labor Statistics advanced 24%. Farm products rose 12%. Foods jumped ahead 18%, textiles 25%, furnishings 9%. In armaments alone our bill for that war was a staggering $15,000,000,000 higher than it should have been.

Nor did inflation cease with the Armistice. As a matter of fact, when such controls as had been instituted were removed — far too soon, I might add—the index of prices shot up 40 additional points to 240 in 1920.

If anyone nurses a doubt that we were approaching an equivalent situation with alarming speed in this war, let him ponder comparable statistics for the period since 1939. Between the outbreak of war in 1939 and this spring prices of basic raw materials jumped up 66%, wholesale prices advanced 31% and retail prices 25%.

Even more alarming was the fact that half of the raw material price increase, two-thirds of the wholesale and three-quarters of the retail price boosts took place in the twelve months between April 1941 and 1942. In brief, we were tottering on the edge of inflation before the General Maximum Price Regulation went into effect on May 11-18.

How hard the experience of inflated prices hit production during World War I, how seriously the rise in the cost of living affected civilian morale is too intimately within the memory of too many Americans to permit a repetition. President Roosevelt's far-sighted resolve to focus on prices very early in the war was—and has been—totally justified by experience.

As I see it, part of our job, then, has been to make sure that what we had learned we did not lose.

Price control, rent regulation and rationing are all part of the President's plan to gear America's economic front to war time condi-

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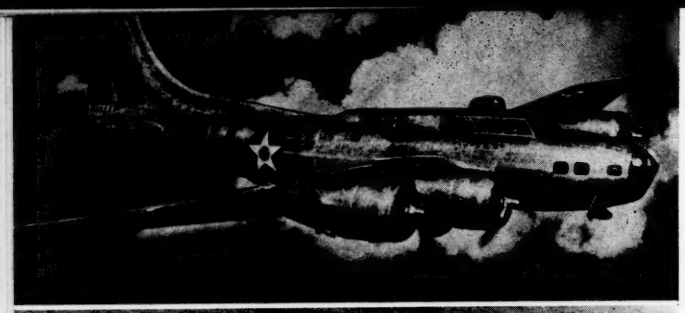
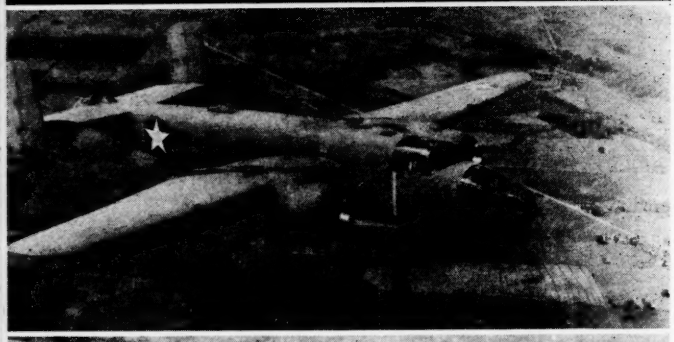
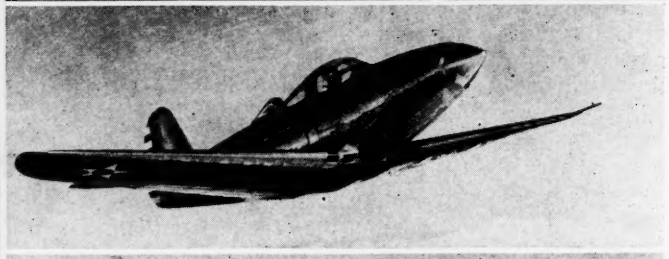
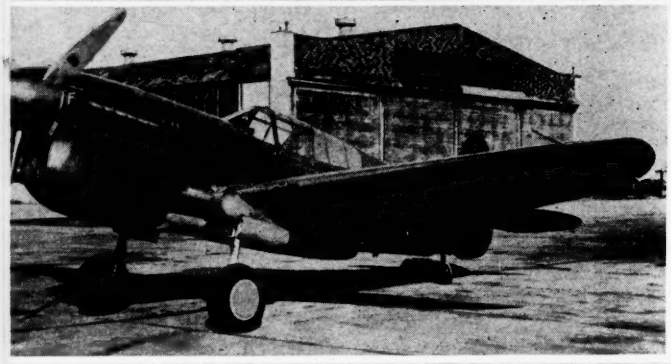








AIRPLANE PRODUCTION GOES TO WAR

IT is 38 years since the Wright Brothers flew the first airplane at Kittyhawk, North Carolina, and in that time the aircraft industry in the United States has made something over 100,000 planes of all kinds, from puddle jumpers tied together with bailing wire, to an 82-ton Army bomber. Now we are in a production program that calls for, in one year, substantially more than half the total number of airplanes made since 1904. This means a complete military plane should roll from the plants about every 8½ minutes of every day in 1942.

The American aircraft industry, when the need came, was not geared for anywhere near this many planes. Compared with the present demand, the production for World War I was indeed infinitesimal. At its outbreak, for instance, we had 55 airplanes. From a military point of view, 51 of these were classified as obsolete and four as obsolescent, leaving our air force "fleet" at zero.

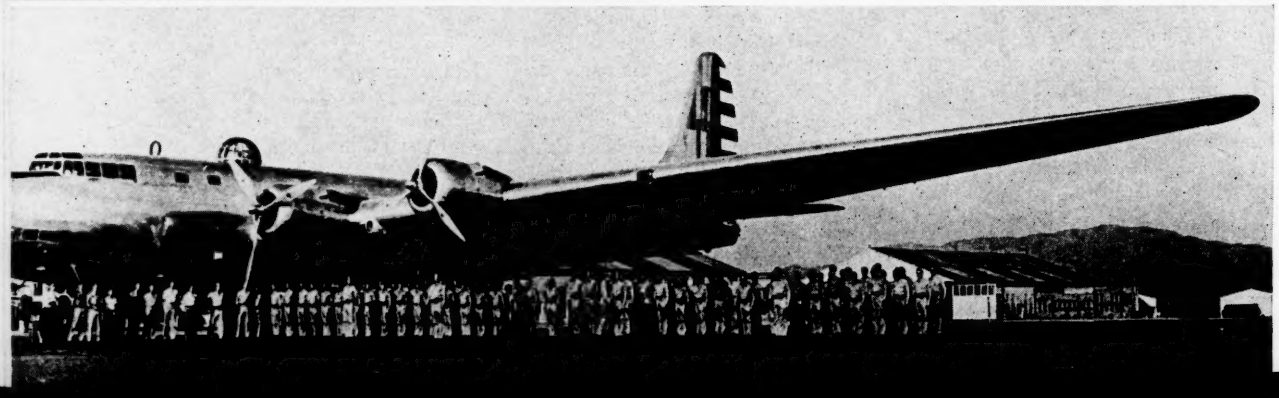
Into the building of a bomber go more than 100,000 man-hours of work. There are more than 30,000 different parts and, counting duplicates, there are several hundred thousand separate pieces of metal. The engines themselves are made of 8000 separate pieces of metal, each of which must be machined on machine tools.

The demand for accuracy can best be illustrated by saying that the carburetor of a large airplane engine is a more complicated bit of engineering than the entire engine of your automobile—that one cylinder unit develops as much horsepower as an eight-cylinder automobile.

In the last war, airplane engines had to be overhauled every 50 hours. Today because their vital parts are machined to within a few ten-thou-

Examples of the various airplanes now being produced in American factories are: (top to bottom) the Boeing B-17 "Flying Fortress"; the North American bomber B-25; the 400-m.p.h. Lockheed "Lightning" P-38; the Bell "Airacobra" P-39; the Curtiss P-40; and the 82-ton Douglas B-19.

(Official photos U. S. Army Signal Corps)



Other examples of American airplane production are: (top to bottom) Consolidated's "Cataline," PBY-1; a Navy experimental plane; Consolidated's PB2Y-2; Republic's XP-47B; the Navy's SBD-1; and Martin's B-26. [Photos 1, 2, 3 and 5 are official U. S. Navy photos; photo 4 is an official photo of U. S. Army Signal Corps.]

sandths of an inch, they can go 600 hours at a stretch. Such precise workmanship is making airplanes for the Army and Navy that are the finest of their types in any air force. These airplanes will be made in such numbers that the United States will have the largest air force in the world.

Up to the end of November 1918, we produced a single type of bomber, shipping abroad slightly more than half of the total of 3,227. We produced 13,574 Liberty engines and shipped more than a third of them abroad, and produced for use here 8,000 training planes and 16,000 training engines.

Aside from this brief flurry of activity, serious production of military aircraft was not started until four years ago, when European nations looked to this country for help in attempting to overcome the lead taken by the Axis. In 1938—the year of Munich—our aircraft plants were producing about 100 military planes a month. Then France placed an unprecedented order for 200 pursuit planes. Britain followed and France doubled its order; and by 1939, the 36,000 shop employees of the industry were building warplanes at the rate of 200 a month.

Meanwhile, Congress approved a program for 5,500 aircraft for our armed forces and at the end of the year the industry, that was primarily interested in flivvers and commercial transports, could count a production of more than 2,100 military planes.

By the spring of 1940 the rate was nearing 500 a month. As impressive as this expansion record seemed, the industry and the nation at large had to catch breath after President Roosevelt in May told Congress he would like to see this nation "geared up to the ability to turn out at least 50,000 planes a year." "Furthermore," he said, "I believe this nation should plan at this time a program that would provide us with 50,000 military and naval planes."

This planning program began to make its tremendous demands felt in every part of the industry—assembly plants were doubled and redoubled, part makers brought in more and more shops. One single plant now uses more workers than were in the entire industry three years ago, and the total number of productive employees in more than 30 plants is well above 300,000.

These newly trained men and women have joined the veteran mechanics from other industries who have brought to this field the skill to shape pieces of metal. Many of their old familiar machine tools have been adapted to this work but many new ones have had to be built because tolerances unheard of in other industries are every-day measurements in aircraft plants. Men and machines were to do a job that never had been done before: make quantity

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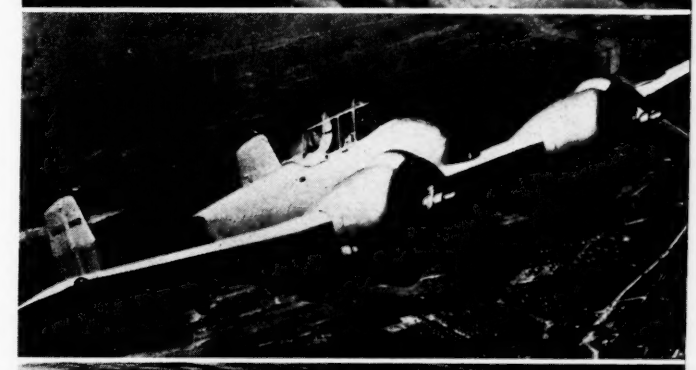
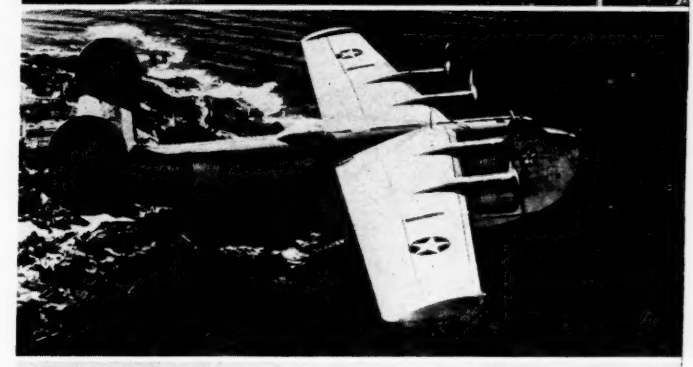




Texas Soil Conservation Attracts World Wide Attention

By

H. H. Bennett
Chief, Soil Conservation Service
U. S. Department of Agriculture

IN a solid block of 34,000 acres, 174 Texas blackland farmers in the watershed of North Elm Creek, near Temple, have completed a job of soil conservation that is attracting worldwide attention. With practical farm measures they are holding back much of the rainfall that used to run off the land, sweeping away productive soil and slithering the land with gullies. And with the soil and water thus saved, these farmers are doing their part in getting the increased production of food, fiber, and oils so acutely needed in our agricultural war program.

This is the largest cooperative effort of its kind that has ever been carried out in the United States or anywhere else: 174 farms in a solid block treated for conservation—every acre of every field and pasture, and every wasting gully. It is also one of the most spectacular, visually and in measure of results attained. Its zebra-striped patterns of conservation field measures wind becomingly around the slopes and valleys without regard to fences or property lines. Air passengers note this as they fly overhead.

Here is real conservation—production through scientific measures technically applied. What it really amounts to is selective service for each acre of land: that is, use of the land according to its needs and capability to produce.

Demonstrating Erosion Control

By petition of the farmers themselves, the Elm Creek work was started as a demonstration of practical ways for conserving soil and rainfall, back in those pioneering days of 1934 when soil conservation as a regular part of farm practice was comparatively unknown and untried. The original cluster of demonstrating farms expanded as the work progressed—as the strip crops and terraces and contoured rows crept across fields to protect more and more of the eroding slopes. As benefits became manifest, soil conservation spread out in every direction—a farm here, a small group of farms there. The demonstration project became an example not only locally but throughout the famous blackland belt of Texas, and indeed throughout all of agricultural America and many distant parts of the world.

Some six hundred farms—613 to be exact—eventually joined in the demonstration which covered the 206,000-acre watershed of Elm Creek. These farms were all completely treated, according to need and adaptability. After the original work was under way for some time and farmers saw what it meant, the people living in the tributary watershed of North Elm Creek asked to have the work extended to their neighborhood. And it is the work that has been done in this tributary area, on the 174 adjoining farms referred to, that is emphasized in this article.

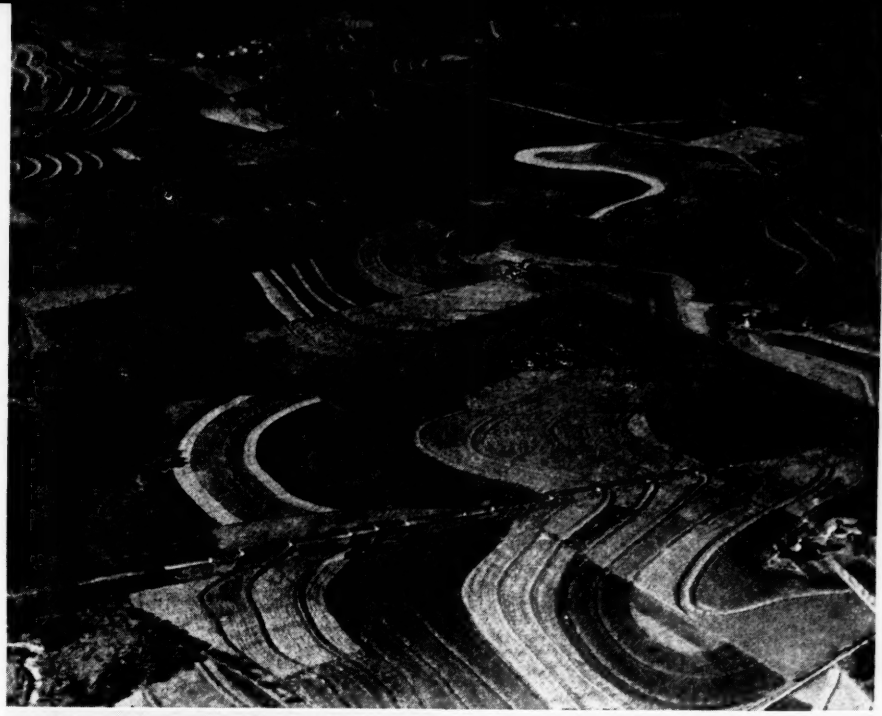
Wastage by Erosion

It was about 60 to 70 years ago that the virgin prairies of central Texas, richly clothed with little bluestem and other native grasses, first felt the prick of the plow. But before these farmers of the Black Belt started in for soil conservation, nearly every hilltop stood out conspicuously with telltale spotches and streaks of cream-colored subsoil. Rich black clay land still followed the lower slopes and stream bottoms, but from fields on the upper slopes the dark topsoil had been floating off in the drainage waters from the successive rains of generations until the lighter colored subsoil of chalk and marl began to show at the surface. Farmers finally sensed that they were losing their principal capital—their productive topsoil. But until they got together and worked with the erosion specialists, they apparently felt helpless to deal with the problem. The usual practice was merely to devote more eroded fields to oats and sorghum while letting the cash crops — cotton and corn — have right-of-way on the less eroded flat lands. This really was about the same as doing nothing to hold back the ebb tide of soil wastage.

These farmers had been accustomed to planting their crops in rows that ran up and down slopes. That was bad practice. Water, concentrated in the gutter-like furrows between the rows, swept away soil from some fields almost as fast as the farmers could have it hauled out on trucks. And there was sheet erosion over entire fields with every heavy rain.

In Texas alone, within less than a hundred years of agricultural occupation, enough soil has been lost as the result of unnecessary erosion to support the people of Palestine for many generations. There has been wind erosion and dust storms over the wheatlands of the Panhandle; sheet washing and gullying over the vast central, southern, and eastern sectors; floods and washouts along rivers like the Trinity and the Brazos; and steady deterioration of the grasslands west of the Pecos. All told, 23 million acres in this one State—an area as large as the combined land area of Maryland, Delaware, New Jersey, Massachusetts, and New Hampshire—has been almost completely stripped of the more productive topsoil or riddled with gullies. These lands have eroded to the point, or very nearly to the point, where their further immediate use for crops or grazing is economically unfeasible.

Top—Air view of a portion of North Elm Creek watershed where on 34,000 acres, every acre of every field and pasture, and every wasting gully, have been effectively protected from erosion. Center—Instead of whole fields of cotton, farmers along Elm Creek break up the sloping land into parallel strips of thick protective vegetation with strips of cotton sandwiched in between. Bottom—The plowed blacklands suffer from sheet erosion with every heavy rain where farmers have not protected the land.



Farmers Take Charge

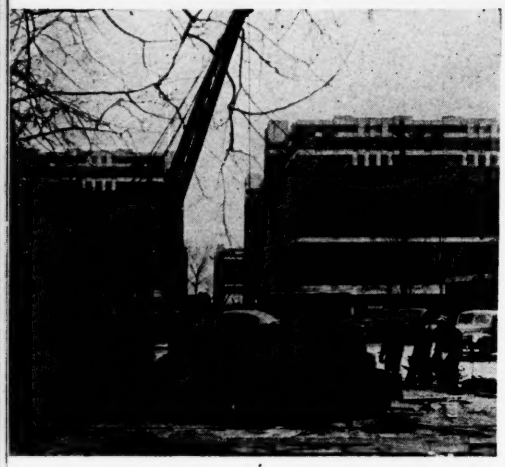
It would be unfair to mention these things without adding that Texas has been a leader in the recent soil conservation movement. At Spur, scientists began studying the effects of erosion and means of controlling it more than a decade ago. At Dalhart, Garland, Hereford, Dublin, San Angelo, Channing, Lindale, and Temple—to mention only a few — soil and water conservation work has been carried out which has won the whole-hearted approval and active cooperation of the farmers. And the legislature has passed a law which makes it possible for farmers in any part of the State to organize and operate soil conservation districts. Already 79 of these farmer-initiated, farmer-controlled districts, covering more than 72 million acres, have been organized in the Lone Star State. (In the 41 other states that have passed soil conservation districts legislation, 657 similar districts have been organized during the past five years, making a total for the United States of 736 districts, comprising approximately 432 million acres, in 42 states.)

Outstanding Work on North Elm Creek

The North Elm Creek project deserves the careful attention of all who are interested in permanent systems of farming and practical ways for getting such permanency. Here, soil conservation plans were made without regard for county boundaries or even farm boundaries. The prime consideration was to protect the land as a whole: to lay out the controls along natural rather than artificial lines. During the past seven years, farmers of this particular

(*Continued on page* 60)

WATER for the SOUTH'S POWDER PLANTS



Above—Placing the forms as construction of a water collector starts at a large plant engaged in war production in the South. The caisson shown will be sunk to a depth of 105 feet. Below—One of seven Ranney collector units at one of the largest of the South's powder plants. View shows the pump house constructed 46 feet above the 1937 flood level. Water, flowing from radial pipes into the caisson, is pumped by a 350 h.p., 7,000-gpm. pump housed in the structure atop the caisson.

"WITHOUT water most of the modern industrial processes would cease operations immediately," the *Wall Street Journal* reported in a recent issue. "Always a vital consideration in war, water has attained new importance in modern conflict. Not only is the health of the combatants dependent upon an adequate supply, but so is the mass production of practically all implements of war."

With the concentration of a number of the country's largest chemical and powder plants in the South, the necessity of obtaining adequate water supply has become a subject of paramount importance during recent months.

For example, the problem of securing water in record quantities to meet the new requirements of southern industry confronted the War Department in its new smokeless powder plants in the Ohio Volley. And a distilling company was faced with the necessity of obtaining increased water supplies to aid in the production of industrial alcohol.*

*The location of these plants in the South is withheld by the War Department in the interests of national defense.

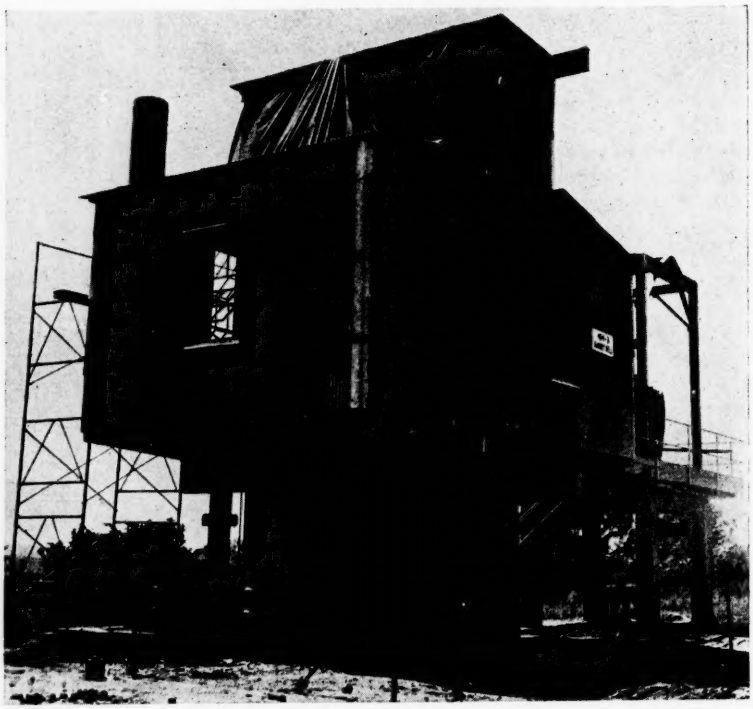
The requirements of some armament plants have been met or are in the process of fulfillment by the introduction of a new-type radial well developed by the Ranney Water Collector Corporation of New York, which recently moved its headquarters to Louisville.

At one plant it was estimated in advance that 68,000,000 gallons per day would be needed—the largest single ground-water requirements in the world. At another plant 28,000,000 gallons per day were needed.

The engineers decided on the radial well system of water collection because, among other reasons, only seven centralized collector units would be required to obtain the unprecedented gallonage of the first plant. At the second, the engineers estimated that only two units would be necessary to bring in the 28,000,000 gallons per day—an average of 14,000,000 gallons-per-day per collector—the highest total gallonage for any single Ranney Collector. The 7-well installation has been operating satisfactorily since the opening of the plant, while the second project is nearing completion.

In the construction of a Ramney unit, the collector caisson, 13 feet in diameter, is sunk to varying depths, depending on local hydrogeological conditions, and slotted screen pipes are jacked out into the sub-surface water-bearing strata. The water, seeping into the collector pipes, flows into the central shaft, from which it is pumped to its destination.

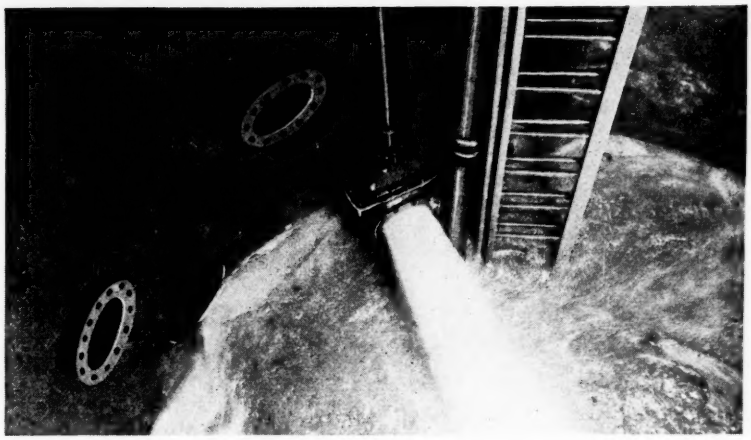
The seven units mentioned above were sunk to depths varying from 80′ to 100′. The water obtained has an iron content of less than 0.01 PPM, and has an almost uniform temperature of about 60 degrees F.



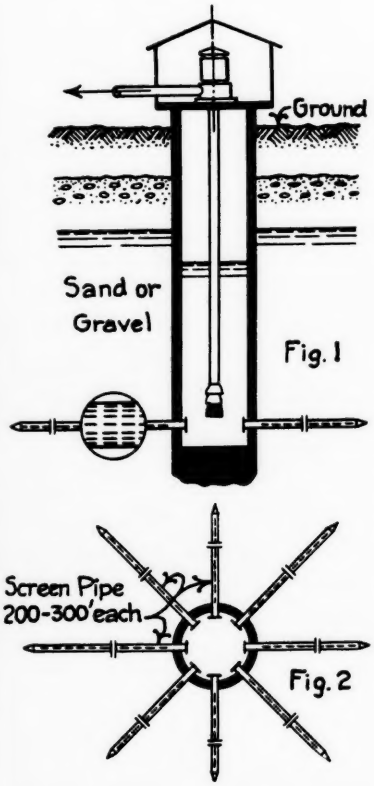
throughout the year. This water supply is also utilized as a condenser without any further cooling.

The water is of high quality as it is filtered on its course through the fine sand and the gravel around the collector screen pipes. The water from each screen pipe can be tested and measured, simplifying proper rates of filtration and pumping. Generally, the extraordinarily slow, uniform rate of filtration results in thorough bacteriological purification since the flow from each screen pipe can be regulated or shut down separately without interfering with production of the other collecting pipes.

The center shafts on these seven units, which are spaced at intervals of 1800 feet, are built up to 46′ to insure a year-round supply of uncontaminated water in spite of local flood conditions. Each shaft is surmounted by a 19′ x 30′ pump house with reinforced concrete floor, steel frame, with walls and roof of asbestos siding. The house rests directly on the caisson walls, and additional floor area is obtained by cantilever construction.



Above—Water flowing into a Collector through one of the portholes from which horizontal screen pipes extend radially into the water-bearing formations at selected levels. Below—a diagram of the method of installation: a concrete caisson is sunk into the ground and then sealed at the bottom (Fig. 1). Horizontal screen pipes, up to 300 feet long, are pushed radially into the water bearing formations at selected levels.



The Ranney System is also being installed at other plants. One requires an estimated 2,000,000 gallons per day, "water which will contain fewer impurities, a lower degree of hardness and a smaller percentage of dissolved gases," according to engineering specifications. This unit, which is now nearing completion, has been sunk to the bed-rock at a depth of 35′ and five to seven collector pipes totaling 750′ are being employed.

The collector for the second plant, construction of which started in Mid-February, will produce an estimated 8,000,000 gallons per day and the caisson will be sunk to a depth of 105 feet.

Most of the labor and materials used on all of the above installations have been obtained locally.

Important Improvements Recommended for Mobile Harbor

According to a leading item in The Port of Mobile News and Shippers' Guide, published by Alabama State Docks and Terminals, Mobile, important harbor improvements for the Port of Mobile have been recommended to Washington authorities.

Developments recommended by Col. L. D. Worsham, District Engineer of the Mobile U. S. Engineer Office, and Col. J. S. Bragdon, Provisional Engineer for the district, to the Board of Engineers for Rivers and Harbors, Washington, are: Widening of the ship channel from the present 500 feet to 700 feet between the mouth of Mobile River and a point opposite the south yard of the Alabama Dry Dock & Shipbuilding Company. Through the bend in the river north of this point, it is recommended that the channel width be 775 feet as against a present width of 550 feet.

Opposite the northern end of Pinto Island, it is recommended that the channel be widened from 500 to 600 feet, and that this width be maintained up the river to a point north of State Docks Pier C.

The engineers also recommend the widening of the channel opposite the U. S. Quarantine Station on Sand Island to provide a parking space for vessels awaiting quarantine inspection.

Another recommendation covers the adoption of the Garrows Bend Channel, and a channel along the north side of Arlington Dock. While these two channels are being provided mainly for the entrance and exit of vessels from a wharf now being constructed to serve Brookley Field, the channels open up a considerable water front area for such industrial purposes as require a deep water frontage.

In addition, the engineers recommend that the channel in Chickasabogue be widened from 150 feet to 250 feet.

$148,200,000 Daily War Expenditures In May

The average daily rate of war expenditures in May rose to $148,200,000, a gain of 10 percent over the April rate. This compared with an increase in spending in April over March of 12 percent; March and February each recorded monthly rate increase of 21 percent.

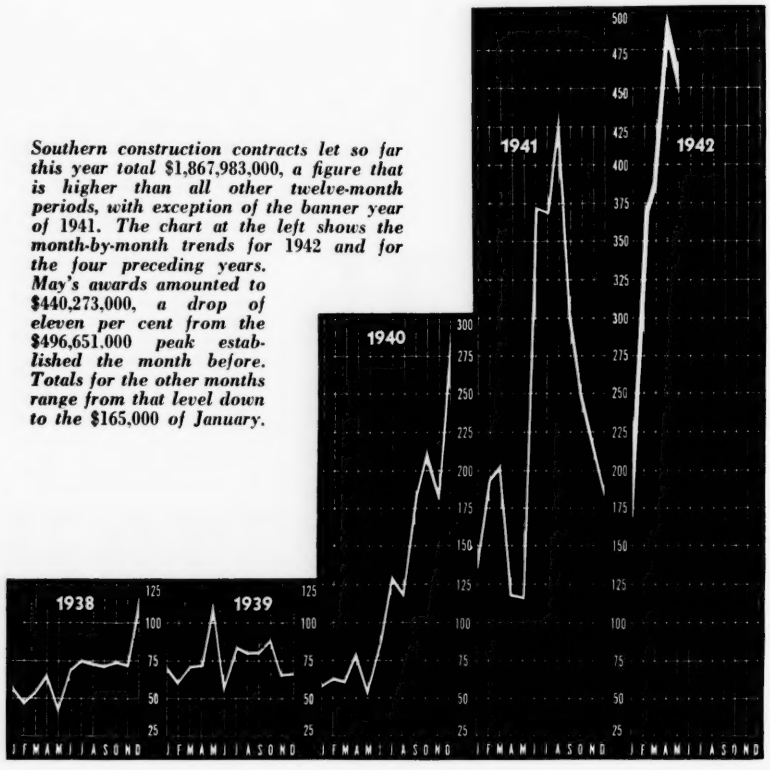
The daily rate of spending provides a more precise basis of comparison than monthly totals, because of variations in the number of days on which checks are paid by the Treasury each month.

SOUTH'S CONSTRUCTION CONTRACTS TOTAL OVER $440,000,000 IN MAY

five-month total ahead of similar period for last year

South's Construction By Types

	May, 1942 Contracts Awarded	May, 1942 Contrats to be Awarded	Contracts Awarded First Five Months 1942	Contracts Awarded First Five Months 1941
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditoriums, Fraternal)	$86,000	$340,000	$3,228,000	$8,739,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	119,000	95,000	3,360,000	11,720,000
Residential (Apartments, Hotels, Dwellings)	10,151,000	9,322,000	67,433,000	40,758,000
Office	.....	25,000	947,000	5,802,000
	$10,356,000	$9,782,000	$74,968,000	$67,019,000
INDUSTRIAL	$140,639,000	$76,378,000	$572,560,000	$394,209,000
PUBLIC BUILDING				
City, County, State, Federal	$158,825,000	$169,942,000	$773,108,000	$141,160,000
Housing	13,939,000	12,165,000	114,390,000	64,078,000
Schools	3,569,000	8,644,000	18,349,000	10,829,000
	$176,333,000	$190,751,000	$905,847,000	$216,067,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	$90,141,000	$46,352,000	$195,014,000	$27,318,000
Federal, County, Municipal Electric	2,473,000	241,000	12,428,000	13,062,000
Sewers and Waterworks	5,962,000	7,143,000	35,644,000	7,137,000
	$98,576,000	$53,736,000	$243,086,000	$47,517,000
ROADS, STREETS AND BRIDGES	$14,369,000	$23,225,000	$71,522,000	$53,655,000
TOTAL	$440,273,000	$353,872,000	$1,867,983,000	$778,467,000



Southern construction contracts let so far this year total $1,867,983,000, *a figure that is higher than all other twelve-month periods, with exception of the banner year of* 1941. *The chart at the left shows the month-by-month trends for* 1942 *and for the four preceding years. May's awards amounted to* $440,273,000, *a drop of eleven per cent from the* $496,651,000 *peak established the month before. Totals for the other months range from that level down to the* $165,000 *of January.*

THE total of Southern Construction for May was $440,273,000. Most of this represented the large military and industrial construction program involving building to further the war effort.

The hugeness of construction totals accumulated so far this year is phenomenal. It is a condition directly connected with the transition from an economy of peace to one of defense and war. The speed with which the metamorphosis is being carried out is accentuated by the fact that the needs of many non-productive nations must be supplied. The construction industry has found itself equal to the job despite the tremendous difficulties involved.

Accomplishments in the South are illustrated by the five-month statistics. These show the total for construction below the Mason and Dixon line to be $1,867,983,000, an unrivaled record for a comparable period. Federal building alone approaches the billion dollar mark with a total of $905,847,000.

May figures, as compiled from reports to the MANUFACTURERS RECORD, show industrial project valuations at one-half the level of the preceding month; public building up about one quarter, and engineering work tripled. The May industrial total was $140,639,000; the public building total, $176,333,000, and the engineering total, $98,576,000.

Prospects for the balance of the year remain favorable, although the pre-

ponderance of new work, as is obvious, will be carried out in the nation's 410 defense housing areas, of which the South has 170 or more, and at points where military construction and industrial expansion are found essential. Vital highway projects are also expected to continue.

Early in May the National Housing Agency issued a statement that priorities could be obtained to assist procurement of critical materials needed in construction or rehabilitation of privately financed housing suitable for war workers in these communities. Order L-121 later issued by the War Production Board stopped softwood construction lumber deliveries for sixty days. As a result, permanent housing construction, it is understood, will dwindle sharply, if it is not eliminated altogether.

A glance at the chart published (opposite) with this article shows the precipitous rise in Southern construction during the elapsed part of this year, with April as the peak and May as the first month of the ebb. The totals for the months in their proper sequence are: January $165,330,000; February, $370,626,000; March, $395,103,000; April, $496,651,000, and May $440,273,000.

The sum of the totals for these months, which is $1,867,983,000, is higher than the figures for all twelve months in any past year except the $2,922,808,000 for the banner year of 1941. During the comparable five months of 1941, Southern awards amounted to $778,467,000, or less than one-half of the 1942 five-month figure.

Industrial

(Including Private Utilities)

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942
Alabama	$740,000	$535,000	$10,735,000
Arkansas	.....	100,000	1,535,000
Dist. of Col.	106,000	8,000,000	1,481,000
Florida	30,000	10,260,000	6,474,000
Georgia	2,330,000	65,000	25,392,000
Kentucky	3,000,000	12,200,000	30,419,000
Louisiana	340,000	580,000	78,064,000
Maryland	1,065,000	233,000	38,214,000
Mississippi	.....	.....	37,011,000
Missouri	320,000	60,000	4,733,000
N. Carolina	81,000	10,025,000	2,104,000
Oklahoma	.....	700,000	20,421,000
S. Carolina	65,000	.....	3,728,000
Tennessee	58,000	6,200,000	6,599,000
Texas	132,460,000	22,395,000	285,499,000
Virginia	44,000	2,000,000	5,499,000
W. Virginia	.....	3,025,000	14,652,000
TOTAL	$140,639,000	$76,378,000	$572,560,000

Public Engineering

(Dams, Drainage, Sewers, Waterworks, etc.)

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942
Alabama	$1,269,000	$1,060,000	$1,815,000
Arkansas	726,000	120,000	6,707,000
Dist. of Col.	103,000	1,465,000	500,000
Florida	42,579,000	4,723,000	48,737,000
Georgia	3,588,000	1,884,000	8,440,000
Kentucky	4,220,000	590,000	5,553,000
Louisiana	2,859,000	8,721,000	13,930,000
Maryland	645,000	160,000	4,676,000
Mississippi	659,000	6,037,000	4,281,000
Missouri	619,000	250,000	5,753,000
N. Carolina	58,000	4,170,000	3,685,000
Oklahoma	311,000	8,000,000	4,205,000
S. Carolina	82,000	684,000	4,244,000
Tennessee	1,581,000	3,835,000	50,400,000
Texas	37,686,000	10,294,000	59,954,000
Virginia	1,591,000	1,043,000	9,811,000
W. Virginia	.....	700,000	19,395,000
TOTAL	$98,576,000	$53,736,000	$243,086,000

Public Building

(City, County, Federal; Housing; Schools)

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942
Alabama	$7,424,000	$8,211,000	$50,364,000
Arkansas	143,000	10,297,000	14,191,000
Dist. of Col.	3,869,000	460,000	20,785,000
Florida	10,230,000	18,815,000	44,109,000
Georgia	15,380,000	7,064,000	40,468,000
Kentucky	5,297,000	8,146,000	44,269,000
Louisiana	3,454,000	4,716,000	29,305,000
Maryland	14,193,000	2,830,000	49,806,000
Mississippi	7,775,000	18,289,000	43,889,000
Missouri	1,654,000	7,199,000	12,832,000
N. Carolina	50,141,000	5,397,000	99,653,000
Oklahoma	2,147,000	16,380,000	79,297,000
S. Carolina	5,338,000	34,218,000	20,315,000
Tennessee	10,826,000	5,580,000	65,716,000
Texas	28,783,000	36,580,000	145,441,000
Virginia	9,861,000	5,424,000	144,202,000
W. Virginia	18,000	1,145,000	1,205,000
TOTAL	$176,333,000	$190,751,000	$905,847,000

Private Building

(Assembly, Commercial, Residential, Office)

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942
Alabama	$	$	$226,000
Arkansas	.....	.....	1,580,000
Dist. of Col.	2,677,000	.....	5,452,000
Florida	54,000	20,000	4,504,000
Georgia	470,000	75,000	5,089,000
Kentucky	.....	.....	60,000
Louisiana	406,000	30,000	1,725,000
Maryland	2,473,000	82,000	16,924,000
Mississippi	.....	40,000	1,500,000
Missouri	80,000	55,000	1,807,000
N. Carolina	300,000	50,000	1,545,000
Oklahoma	95,000	.....	1,265,000
S. Carolina	180,000	.....	4,024,000
Tennessee	.....	20,000	1,089,000
Texas	3,621,000	355,000	18,947,000
Virginia	.....	9,045,000	9,011,000
W. Virginia	.....	10,000	220,000
TOTAL	$10,356,000	$9,782,000	$74,968,000

Roads, Streets, Bridges

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942
Alabama	$925,000	$482,000	$5,907,000
Arkansas	131,000	200,000	351,000
Dist. of Col.	1,141,000	880,000	5,736,000
Florida	199,000	250,000	4,096,000
Georgia	135,000	25,000	4,458,000
Kentucky	582,000	750,000	1,361,000
Louisiana	4,000	345,000	1,623,000
Maryland	4,489,000	1,356,000	11,238,000
Mississippi	850,000	765,000	858,000
Missouri	60,000	1,316,000	68,000
N. Carolina	1,319,000	850,000	3,786,000
Oklahoma	.....	2,650,000	300,000
S. Carolina	410,000	30,000	5,617,000
Tennessee	.....	.....	738,000
Texas	1,142,000	3,938,000	11,759,000
Virginia	1,039,000	9,258,000	8,954,000
W. Virginia	1,943,000	130,000	4,669,000
TOTAL	$14,369,000	$23,225,000	$71,522,000

War Costs $30,615,000,000 To Date

A total of $30,615,000,000 has been laid on the line by the Federal Government for the prosecution of the war since intensive military effort began in the middle of 1940.

This sum was paid out by the Treasury and Reconstruction Finance Corporation over a 23-month period beginning in July, 1940, and ended May 31, 1942.

Expenditures in May came to $3,853,000,000—two and one-half times the figure for November, the month before Pearl Harbor, and more than four times expenditures in May 1941. A 10 percent gain over the $3,505,000,000 expended in April was recorded.

No additional funds were authorized by Congress for the war program during May, and the total of $166,435,000,000 (revised) for the war program of United States Government agencies remained the same as at the end of April.

Contracts and other commitments for war activity in April, the latest month for which such figures are available, amounted to $9,906,000,000. This compares with contracts and other commitments of $16,395,000,000 in March, and $20,932,000,000 in February, when war contracting reached a peak. At the end of April, 35 percent of the funds programmed, or $58,259,000,000 remained to be placed under contract.

Steel Plate Shipments In May Exceed One Million Tons

Steel plate shipments in May bettered the million-ton mark, surpassing by more than 100,000 tons the previous record made in April.

May shipments totalled 1,012,194 tons of which 425,211 tons were made on continuous strip mills. This compares with 895,971 tons shipped in April, including 337,519 tons from strip mills.

Deliveries to shipyards for Maritime Commission orders topped 300,000 tons.

Further conversion of continuous strip mills to plate production now is underway and further increases in plate output are expected in subsequent months.

South's Construction By States

	May, 1942 Contracts Awarded	May, 1942 Contracts to be Awarded	Contracts Awarded First Five Months 1942	Contracts Awarded First Five Months 1941
Alabama	$10,358,000	$10,288,000	$69,047,000	$118,639,000
Arkansas	1,000,000	10,717,000	24,364,000	15,020,000
Dis. of Col.	7,896,000	10,805,000	33,954,000	27,041,000
Florida	53,092,000	34,068,000	107,920,000	40,736,000
Georgia	21,903,000	9,113,000	83,847,000	44,210,000
Kentucky	13,099,000	21,686,000	81,662,000	38,850,000
Louisiana	7,063,000	14,392,000	124,650,000	46,401,000
Maryland	22,865,000	4,661,000	120,858,000	55,315,000
Mississippi	9,284,000	25,131,000	87,539,000	15,759,000
Missouri	2,733,000	8,880,000	25,193,000	41,480,000
N. Carolina	51,899,000	20,492,000	110,773,000	51,300,000
Oklahoma	2,553,000	27,730,000	105,488,000	18,524,000
S. Carolina	6,975,000	34,932,000	37,928,000	27,392,000
Tennessee	12,465,000	15,635,000	124,542,000	52,186,000
Texas	203,692,000	73,562,000	521,600,000	121,652,000
Virginia	12,335,000	26,770,000	177,477,000	28,640,000
W. Virginia	1,961,000	5,010,000	31,141,000	35,322,000
TOTAL	$440,273,000	$353,872,000	$1,867,983,000	$778,467,000

NEW PRIORITIES

PUT IN EFFECT DURING MAY

Aircraft — Amend. #1 to P-109 as amended allows A-1-a rating to be extended for necessary operating supplies.

Aluminum Scrap—M-1-d Amend. #1 places stricter control over segregation and sale of scrap.

Anti-Freeze — L-51 restricts production, sale and delivery.

Amusement Machines—L-21-a Amend. #1 permits use of frozen inventories to fill orders bearing ratings higher than A-2.

Arsenic — Regulates sales and deliveries. Forms PD-490, 491 and 492 must be completed before 6th day of last month of preceding quarter.

Automobiles — L-4-c further restricts production of replacement parts for passenger cars and light trucks. L-4-c Amend. #1 changes expiration date of production.

Bicycles—L-52-a Amend. #2 permits sale of new adult models to specified government agencies or authorized persons in a foreign country.

Burlap—M-70 Amend. #3 prohibits use of jute and jute products in making rugs, carpets and linoleum for civilian use. Form PD-222b.

Butyl Alcohol — M-159 establishes complete allocation control starting July 1. Purchasers use form PD-505 and producers or distributors will file form PD-506. Persons using less than 54 gallons a month are exempt if total does not exceed 2% of a producer's monthly output.

Calcium-Silicon — M-20-a Amend. #1 extends complete allocation control indefinitely.

Canning—M-81 Amend. #2 permits use of tinplate sheets, usable only for food cans of restricted sizes, if sheets were on hand 2-11-42.

Cashew Nuts — M-147 restricts importation to insure maximum extraction of oil from shells. M-66 Amend. #1 prohibits use of oil in making brake linings except for Army and Navy.

Chemicals — M-153 establishes complete allocation and prohibits delivery or use of acrylonitrite unless specifically authorized by WPB. M-10 Amend. #2 restricts all copolymers and polymers of vinyl chloride. M-41 as amended changes ratings for permitted uses of chlorinated hydrocarbon solvents. M-19 as amended removes the requirement of reports on chlorine (form PD-190). M-105 places distribution of naphthalene under rigid control as of June 1, (use forms PD-434, 435). P-89 Amended (Amend. #1) extends further priority ratings to chemical war industries. M-163 restricts deliveries and places production of by-product ammonia and sulphate of ammonia under strict allocation control; use forms PD-237 and 503. M-164 places synthetic ammonia under full allocation control; use forms PD-237, 503 and 504. M-165 places cyanamid under full allocation control; use forms PD-237 and 503. Manufacturers and retailers of fertilizers and their agents are *not* included in the restrictions imposed by orders M-163, M-164 and M-165 though they must file form PD-503 prior to July 1. M-167 places all deliveries and use of capryl alcohol under rigid allocation control; use forms PD-525 and 526. M-168 places use and all deliveries of iso-propyl alcohol under strict allocation control; use forms PD-521 and 522. M-169 places use and all deliveries of methyl ethyl ketone under strict allocation control; use forms PD-523 and 524.

Closures for Glass Containers—M-104 as amended 5-30-42 limits, after June 1, the use of blackplate in closures for beer and non-alcoholic bottles to 60% of tonnage so used in 1941. Also limits inventories to 20% of number used last year. Use of tinplate or terneplate is prohibited now. Blackplate closure production and sale is prohibited after July 31. There are no restrictions on use of scrap, waste, reclaimed or used tinplate, terneplate or blackplate.

Cocoa — M-145 restricts amount of cocoa beans that may be ground, processed or sold. M-145-a restricts amount to be ground in May and June. Requires use of form PD-472.

Construction — L-41-600 permits building by government roads departments of essential public roads by monthly reports of material requirements without individual authorization of each project (use form PR-46). L-41 Amend. to Sched. A changes "defense housing" to "war housing" and designates place where PD-200 and PD-200A may be filed. L-82 places restrictions on sale and production of power cranes and shovels and rubber-tired construction equipment (use forms PD-445, 446). L-41-a requires stoppage before June 6 of all construction primarily for public amusement costing $5,000 or more. P-19-a (Amend. #1) restricts use of materials to defense projects only.

Cooking Appliances — L-23-b forbids the sale or distribution of domestic electric ranges except on a rating of A-9 or higher or by specific authorization of WPB (form PD-192 required). L-23-c prohibits manufacture of domestic appliances by larger firms after July 31 and only permits limited production of light weight models by smaller firms.

Copper—Amend. to M-9-a as amended 1-7-42 and 2-6-42 limits shipments of copper and copper alloys to ratings of A-1-c or higher or unless specifically authorized by WPB, L-108 prohibits use of copper or copper base alloys in all but essential operating parts of motor vehicles. M-9-b as amended 5-9-42 includes "ingots" in scrap order and provides for monthly reports from foundries on PD-459. M-9-c as amended 5-7-42 curtails use in civilian products in new A-1 list unless specially authorized or filling an order with rating of A-1-k or higher (use forms PD-167 rev. and PD426). Amend. to M-9-c as amended facilitates sales of frozen brass or wire mill products to brass or wire mills without WPB approval. M-9-c as amend. Inter. #1 forbids use of brass screws or copper products to attach handles to saw blades. Amend. to P-106 extends A-1-c rating to suppliers of maintenance materials for copper mills to replenish inventories after filling A-1-c or higher rated orders. M-9-c-1 permits shoe makers to use findings containing copper if they were in stock on March 31, 1942.

Cotton Duck — M-91 Amend. #2 provides a new procedure for handling preference rated orders. Use form PDL-1.

Cotton Yarn (Combed) — M-155 requires mills to set aside at least 40% of their medium combed yarns and not less than 65% of their coarse combed yarn for the armed services not later than June 29.

Cotton Pulp (Chemical) — M-157 provides complete allocation control effective July 1. Forms PD-507, 508 and 509 must be filed by consumers and producers each month.

Dyestuffs—M-103 (as amended) increases quantity of dyes available for civilian uses.

Electric Lamps and Shades (Portable)—L-22 Amend. #1 extends by 39 days the period in which metal, metal parts, cords and silk may be used in manufacture. L-33 Int. #1 lifts restrictions on repairs where new metal frame is not required. L-33 Amend. #2 redefines "portable lamps" and adds to list of parts in which iron and steel may be used.

Electroplating and Anodizing Equipment—L-110 restricts production and limits sale and delivery to orders rated A-1-j or higher. Use form PD-1A.

Export of Critical Materials—M-148 Amend. #1 removes farm equipment from materials listed in schedule A.

Farm Machinery—L-26 Amend. #3 provides shipments to specified countries up to 112% of net shipping weight of total quantity of those countries in 1940; use forms PD-388 and 387. L-26-b controls dispository of surplus inventories of iron and steel held by manufacturers in excess of production quotas; use forms PD-478 and 479.

Feminine Apparel—L-85 Amend. #2 includes fur coats in restrictions of original order. L-118 places control over cloth used in women's and children's robes, housecoats, negligees, beach coats and lounging pajamas. L-116 prohibits use of unnecessary yardage in women's and children's lingerie.

Ferrous Material—P-79 Amend. #1 assigns A-1-c rating for deliveries to be used in making non-metal containers for food products.

Fire Protective Equipment — L-39 Amend. #2 freezes all 2½ inch brass fire hose couplings in the hands of distributors. L-39 Amend. #3 permits manufacture of carbon dioxide extinguishers according to specifications of armed services and Maritime Commission, restricting deliveries to orders rated A-1-j or higher.

Foods, Canned—M-86-a as amended 5-25-42 states that grade preference of fruits and vegetables packed in 1942

(*Continued on page* 52)

Important New Industrial Plants and Expansions in the South During May

ALABAMA

Shipyard—Decatur Iron & Steel Co., H. R. Davis, Pres., Decatur, started construction of shipyard on Tennessee River; all construction work by day labor, under supervision of J. B. McBride, Supt. and R. T. Harris, Mgr., shipyard; project consists of a launching slip, 150 x 670 ft., a concrete platten and yard office, guard and time keeper's office and warehouse.

GADSDEN—equipment building—Capitol Construction Co., 157 Cain St., N. W., Atlanta, Ga., has contract for equipment building for Republic Steel Co.; R. J. Evans Engineering Co., Engrs., Watts Bldg., Birmingham.

GORGAS—steam plant—Wilborn Construction Co., Birmingham, has contract for certain work at Gorgas Steam Plant for Alabama Power Co., Birmingham.

GEORGIA

ATLANTA—addition — Holfast Rubber Co., 1486 Lakewood Ave., S. E., plans addition to plant; owner builds.

MACON—building—Southern Bell Telephone & Telegraph Co., constructing building on Cherry St.; 3-story and basement; faced brick trimmed with limestone; will move equipment from present location, 213 Cotton Ave.

MILLEDGEVILLE — fuse plant — Mion Construction Co., 377 Techwood Drive, N. W., Atlanta, has contract for fuse loading plant; Philip M. Julien & Co., Archts., Washington, D. C.; W. Wiliott Dunwoody, Jr., Asso. Archt., Macon.

SAVANNAH—drydock — Savannah Machine & Foundry Co., 632 Indian, signed contract with MacDougald Construction Co., Northside Drive, N. W., Atlanta, for construction of drydock, 480 ft. long and 72 ft. wide, also a fitting-out pier, 500 ft. long, and a wet basin 450 ft. long to accommodate 2 ships, installation of necessary cranes, etc.

THOMASTON — bottling plant — Frank Binford has contract for bottling plant for Thomaston Coca-Cola Bottling Co.; Robert & Co., Archts.-Engrs., Bona Allen Bldg., Atlanta.

KENTUCKY

Plant—War Department authorized expansion of facilities of a manufacturing plant in Kentucky, to cost in excess of $3,000,000; construction will be supervised by Louisville, Ky. District Office of Corps of Engineers.

LOUISIANA

ALGIERS—buildings—Lionel F. Favret, 937 Gravier St., New Orleans, will probably receive contract for carpenter, tin and electric shop building to be erected at Todd-Johnson Drydocks, Inc.; Kelly, Syska & Hennessy, Engrs., 144 E. 39th St., New York.

NEW ORLEANS—steel—Bethlehem Steel Corp., Bethlehem, Pa., has contract for structural steel in connection with buildings at shipyard for Higgins Corp., Union Bldg.; cost $4,500,000; Walter B. Moses, Union Bldg., chief engineer of corporation will soon call for bids for new administration building for shipyards.

NEW ORLEANS—plant—Pan-American Alloys, Inc., incorporated with C. C. Peters of McKeesport, Pa., Pres.; W. S. Peters of Pittsburgh, Pa., Treas., establishing plant, 1115 S. Liberty St., for manufacture of aluminum airplane parts; William Boustead, 947 S. Cortez St., New Orleans, Gen. Mgr.

NEW ORLEANS—offices—Chris Larsen Co., Maritime Bldg., New Orleans, has contract for offices and store room No. 2 for Louisiana Shipyards on Industrial Canal at Florida; contract also includes hot water heating system in store room 1 and 2 and miscellaneous work; J. G. White Engineering Corp., Hibernia Bank Bldg., Engrs.

Contracts Awarded

MISSOURI

ST. LOUIS—addition—Murch-Jarvis Co., Cotton Belt Bldg., has contract for factory addition, 630 S. 2nd St. for Air Reduction Co., 2nd and Plum Sts.; brick and reinforced concrete; 1-story; 56x89 ft.; concrete foundation; extend present heating plant; cost $40,000.

ST. LOUIS—addition—Smith-Cook Construction Co., 4829 Easton St., has contract for $23,000 addition to plant of National Bearing Metals Corp., 4930 Manchester Ave.; 1-story; 74x82 ft.; conc. found.

ST. LOUIS—shipyard—Missouri Shipbuilding Corp. erecting and will operate shipbuilding yard at foot of Marceau Ave.; estimated cost $3,000,000.

ST. LOUIS—factory—Austin Co., 1198 Arcade Bldg., has contract for building, 161-5 Cherokee; 1 and 2 story; 145x465 ft.; concrete foundation; steam heat; cost $375,000.

SOUTH CAROLINA

SPARTANBURG—cannery— Fiske-Carter Construction Co. has contract for peach cannery; will be operated by a growers' cooperative, Ben M. Gramling, Chrmn.; cost $65,000; seasonal capacity of 200,000 cases.

TENNESSEE

MEMPHIS—aircraft plant—Memphis Construction Co., 160 Union Ave., Memphis, laying foundation of $600,000 aircraft assembly plant building of McDonnell Aircraft Corp., St. Louis, Mo.; H. C. Bokel, 3964 Arsenal, St. Louis, Mo., will supervise construction.

MEMPHIS—expansion— Pidgeon-Thomas Iron Co., 107 E. Iowa Ave., has building permit for construction at its plant S. Main and Iowa Ave. of facilities to include a template or pattern plant and warehouse.

TEXAS

Shredded iron plant—National Concrete Co. of Texas, Construction Bldg., Dallas, has contract for shredded iron manufacturing plant for Shredded Steel Co., H. H. Johnson, Mgr., temporary offices Adolphus Hotel, Dallas.

Plants—B. F. Goodrich Rubber Co., Akron, Ohio, will construct, with company forces, a $17,000,000 plant for manufacture of latex; Lummus Co., 420 Lexington Ave., New York, has contract for $40,000,000 plant for Neches Butane Products Co.; Dow Chemical Co., Midland, Mich., will erect $28,000,000 plant; Stone & Webster-Blodgett, 49 Federal St., Boston, Mass., contractor; all three plants to be operated by Neches Butane Products Co., Port Neches, where office of company will be built.

EDINBURG—processing plant—Howard E. Towell, 502 E. Champion St., has contract for remodeling building, 808 E. Harriman St. for Meyer Canning Co.; work started.

HOUSTON—power plant—Houston Lighting & Power Co., beginning work on a $2,000,000 power station on Houston-Richmond Highway; initial capacity of 35,000 k.w.; has site of 100 acres.

HOUSTON—paint manufacturing plant—Southwestern Construction Co., 3802 Calhoun St., general contractor for paint manufacturing plant for Humble Oil & Refining Co., Humble Bldg., let following sub-contracts and material contracts; foundation poured; cost $100,000; glazed hollow tile, Frazier Brick Co., Seguin; freight elevator, Hunter-Hayes Co., 312 Caroline St.; steel sash, Shelton W. Greer, M. & M. Bldg.; ready-mixed concrete, W. D. Haden Co., 1720 Delano St.; reinforced and miscellaneous iron, Peden Iron & Steel Co., 700 N. San Jacinto St.; tile work, Mazza Tile Shop, 1915 Dallas St.; finished hardware, Bering Cortes Hardware Co., 802 Prairie St.; face and common brick, W. L. Macatee & Sons, 103 Austin St.; roofing and sheet metal, A. M. Bowles Co., 4005 Center St.; paint, W. F. Hagen, 1306 Tabor St., all Houston; Alfred C. Finn, Archt., Bankers Mortgage Bldg.

HOUSTON—plant—T. D. Howe, 3210 White Oak Drive, has contract for plant for A. O. Smith Corporation, 817 Niels Esperson Bldg.; Mosher Steel Co., 3900 Washington Ave., contract for steel; Peterson Bros., 6609 Capitol Ave., contract for erection.

LUFKIN—expansion — Southland Paper Mills, Inc., E. L. Kurth, Pres., has under construction, completion planned for early next year, a pulp mill; all materials purchased; foundation in.

PORT ARTHUR—plants—Lummus Co., 420 Lexington Ave., New York, has contract for erecting 2 plants for Dow Chemical Co., Midland, Mich.; Dow Co. granted $45,000,000 aid to build the plants, in connection with the $80,000,000 butadiene plant to be constructed by Neches Butane Products Co.

TEXAS CITY—gasoline plant—Republic Oil Refining Co., construct $7,000,000 addition to refinery; will produce 100 octane aviation gasoline; unit will be built by government and operated by refining company.

VIRGINIA

ALEXANDRIA—rendering plant—Davis, Wick, Rosengarten Co., Inc., National Metropolitan Bank Bldg., Washington, D. C., has contract, work underway, on rendering plant for Norton & Co.; 3-story; concrete, frame and brick; housing a 600 h.p. power plant; plans for which were drawn by George A. Wick, Struc. Engr., 3031 K St., N. W., Washington; following are sub-contractors: Excavation and concrete, Whittington & Brown, 600 F St., N. W.; brick work, William F. Nelson, 923 V St., N. W.; limestone, Edmonds Art Stone Co., Inc., 2135 Queens Chapel Rd., N. E.; glass and glazing, Chesapeake Plate & Window Glass Co., 2035 K St., N. W.; plumbing, Costello Engineering Co., 22 M St., N. E.; slag roofing, Easterday Roofing Co., 2214 Ninth St., N. W., all Washington; chimney, Alphons Custodis Chimney Construction Co., 80 Broad St., New York.

RICHMOND—steam plant—Virginia Electric & Power Co., J. G. Holtzclaw, Pres., plans constructing a $6,800,000 steam plant to generate electric power and to be located on James River in Chesterfield County, 10 miles south of Richmond; will have a power output of 50,000 kw.; when completed about October 1943 the plant will be about 200 ft. square and as high as an 11-story building; will be located in the center of the Vepco system which serves approximately 1,000,000 persons and covers the area between Occoquan River to just south of the Albemarle Sound in North Carolina; company will have a capacity output of about 260,000 kw.; Stone & Webster Engineering Corp., has contract.

SOUTH

Rust Furnace Co., Clark Bldg., Pittsburgh, Pa., has contract in excess of $1,000,000 to design and construct 10 continuous slab and billet heating furnaces for Bethlehem Steel Co.; furnaces represent additions to present capacity.

Contracts Proposed

ARKANSAS

BATESVILLE—plant—American Zinc & Lead Co., 818 Olive St., St. Louis, Mo., will operate manganese plant to be built near Batesville; capacity 400 tons daily; construction to begin soon.

FORREST CITY—clothing plant—Brown Manufacturing Co., 607 W. Markham St., Little Rock, establish branch clothing manufacturing plant.

(Continued on page 46)

SUB-CONTRACTORS WANTED

For information, blue prints, specifications, etc., on the following items write or telephone the Philadelphia office of the War Production Board, quoting the symbol number of the item in question. You will then be put in touch with the engineer assigned to that item. Please quote the Manufacturers Record.

Ref. 4-25-1

A Wisconsin company requires subcontracting facilities on Steel Forged Lifting Eyes. The weight of each is 6.5 lbs. Quantity: 2,000 per month, total order at present —20,000 pieces. Delivery is to start the early part of June, 1942. A 3,000 lb. Hammer is required to produce this item.

Ref. 9-22-3

A Connecticut concern is looking for subcontracting facilities for AVIATION MOTOR COMPONENTS. Diffuser Support Studs, Breather Connection Bodies, Valve Tappet Rollers, Main Crank Case Studs, Pusher Rods—Ball Ends, Valve Rocker Shafts, Exhaust Valve-Spring Washers, and Super Charge Drain Adaptors. Material necessary for this work is largely Bar Stock Steel. Tolerances—medium and close precision. Quantity—various according to the item, production to start as soon as possible. Tools required: Screw Machines—or equivalent, Light Milling Machines, Drilling and Light Forging Equipment—all of various sizes; also, Heat Treating Equipment. Contract by negotiation.

Ref. 9-22-4

A New York manufacturer wishes to locate subcontracting facilities for MAGNETO PARTS, Breaker Cams, Distributor Gear Shafts, Cam Drive Gears and other parts. Required material — Bar Stock of various sizes. Tolerances—high precision. The quantity required is indefinite. Production to start as soon as possible and to be at the rate of 1,000 a month. The following equipment is necessary for the work: Turret Lathes, Screw Machines, Milling Machines, and facilities for Precision Grinding, Heat Treating, and Hardness Testing. Contract by negotiation.

Ref. 9-29-1

A New York company urgently requires indefinitely continuous **DAILY** subcontracting facilities for Metal Components segregated as follows: Item 1, for 127 parts from Forgings about 6¾″ x 2¾″ x 1¼″ WD 1045 Steel; Item 2, for 150 parts from Stock Size 29/32″ Bar, material Corrosion Resisting Steel CRS-6; Item 3, for 1016 parts from Stock Size 1-17/32″, material Corrosion Resisting Steel CRS-6; also, Item 4, for 130 parts (ultimate 25,000) from Stock Size 1″ Dia. Bar, material WDX-1315; and Item 5, for 105 parts (ultimate 25,000) from Stock Size 7/16″ x ½″, material Steel WDX 4340 or WD 4640. Material will be furnished by the prime contractor. In general, minimum tolerances are .001 and the following equipment or equivalent is required: #3 J. & L. Turret Lathe, #4 B. & S. Automatic Screw Machine; #2 Thompson Automatic Profile Miller; 1-12 Plain Automatic, 0-8 & #2 D. T. vertical Cincinnati Millers; #MM-1-6 U. S. Multimiller; 6 x 18 Landis Cylinder & #25 Grand Rapids Surface Grinders; Drill Presses; Carburizing Furnace; Blanchard Demagnetizer.

Ref. 13-29-1

An Illinois manufacturer requires subcontracting facilities for the production of 100,000 pcs. ⅝″ Carbon Steel Rod—10″ long—galvanized; and 400,000 pcs. ½″ Carbon Steel Rod 8″ long—galvanized. Material necessary for this work is ½″ and ⅝″ Round Steel SAE 1015 or 1025. Galvanize should withstand 72 hours Salt Spray Test. Equipment—Facilities to cut Rod to size and galvanize by Hot Dipped Process. Production is to start shortly. Contract by negotiation.

Ref. 11-28-1

A Connecticut concern is seeking subcontracting facilities on Fuze Body, size 2.585″ in length by 1.378″ diameter, one external and two internal threading operations. Material required is Steel WD x 1314 Cold Drawn. Die Head with Chasers and three Tap Heads with Chasers, as well as Cadmium Plate and material, are to be furnished by prime contractor. Tolerances + or — .003. Quantity—350,000 pieces at the rate of 50,000 per month, production to start by July 20, 1942. Equipment—Four-spindle Automatic Screw Machines; J & L Turret Lathe—or equal; New Britain Chucking Machine—or equal.

Ref. 13-28-1

The Government wishes to locate subcontracting facilities on AIRCRAFT RADIO COMPONENTS: 18,000 pcs. Antenna Attachment Hooks made from Aluminum Alloy Rod; 18,000 pcs. Antenna Fairlead including 18,000 Mycalex Corona Shields; 113,000 Clip Mounted and 50,000 Post Mounted Cartridge Type Fuze. Production to start as early as possible. Contract by negotiation.

Ref. 10-26-1

A Penna. firm requires subcontracting facilities for Cylinder Frames. Requirements —Large Planers 18′ to 20′ strokes; also #4 Heavy Millers. Material to be furnished by prime contractor.

Ref. 10-26-2

A Penna. company wishes to locate subcontracting facilities for Heavy Casting Work. Requirements—Vertical Boring Mills that will swing 13½′ to 14′. Fairly close tolerances. This requirement also calls for Repairing and Annealing before shipment. First Castings will be ready about July 15. Material furnished by prime contractor.

Ref 10-26-3

A Penna. firm is trying to locate subcontracting facilities for Intermediate Thrust Shafts. Requirements—Heavy Lathes 10′ to 12′ between centers 18″ to 20″ swing, Keyseaters, and Radial Drills. Several Shaft Forgings to be supplied.

Ref. 4-27-1

A Penna. concern requires subcontracting facilities to fabricate a variety of Blanking and Forming Dies. Material to be formed is .0747″ to .375″ Hot Rolled Plain Carbon Steel, to be furnished by prime contractor. Production to start as soon as possible. Priority rating is A-1-A.

Ref. 11-27-1

A Penna. manufacturer requires subcontracting facilities for Base Plugs for Anti-Personnel Mines—Approximate weight .30 lbs., diameter 1.67″, length 1.02″; Internal and External Threading. Material necessary for the work is Steel—WDX 1335. Tolerances + or — .02. The quantity needed is 200,000—50,000 by July. Equipment required —Multi-spindle Automatic Screw Machines. Bids accepted on all or part.

Ref. 11-26-1

A Penna. concern is looking for subcontracting facilities on Body for the M 48 Fuze. Material—WDX 1314 Cold Rolled Steel. Tolerances: + — .005. Quantity needed is 25,000 to 50,000 per week. 2—⅝″ Multi-spindle Screw Machine is required for this work.

Ref. 16-26-1

A Penna. firm requires subcontracting facilities for Cylinder Frames. Requirements —Large Planers 18′ to 20′ stroke; also #4 Heavy Millers. Material to be furnished by prime contractor.

Ref. 16-26-2

A Penna. company wishes to locate subcontracting facilities for Heavy Casting Work. Requirements — Vertical Boring Mills that will swing 13½′ to 14′. Fairly close tolerances. This requirement also calls for Repairing and Annealing before shipment. First Castings will be ready about July 15. Material to be furnished by prime contractor.

Ref. 16-26-3

A Penna. firm is trying to locate subcontracting facilities for Intermediate Thrust Shafts. Requirements—Heavy Lathes 10′ to 12′ between centers 18″ to 20″ swing, Keyseaters, and Radial Drills. Several Shaft Forgings to be supplied.

Ref. 13-31-1

The Government requires subcontracting facilities on AIRCRAFT COMPONENTS—Streamlined Tie Rod Assemblies made from Corrosion Resistant Steel Stock and fitted with Clevis and Lock Nut at each end. Various lengths and sizes. Material: Corrosion Resistant Steel #49T9. Tolerances: medium. Quantity: 4,126 pieces. Production to start shortly. Contract by negotiation.

Ref. 13-31-2

The Government wishes to locate subcontracting facilities on AIRCRAFT COMPONENTS—Internal Tie Rod Assemblies of

various sizes and lengths all fitted with Clevis and Lock Nut at each end. Rods made from Corrosion Resistant Steel Stock. Tolerances are to be medium. Quantity—4,345, production to start shortly. Contract by negotiation.

Ref. 13-31-3

A Penna. company is looking for subcontracting facilities for the manufacture of PUMP COMPONENTS—100 pcs. Stainless Steel Shafts ¾" dia. x 20" long, two Keyways in each Shaft with Stainless Steel Bushing 1 1/16" O. D. and 2 1/16" long fitted and pinned to each Shaft; 400 pcs. Roller Chain Sprockets 10 T ¾" Pitch cut from Brass Bar Stock, bored and 3/16" Keyway cut, 2⅝" O.D.; 200 pcs. Roller Chain Sprockets 9 T ¾" Pitch cut from Brass Bar Stock, bored, 2½" O.D.; and 200 pcs. Brass Adjusting Screws 5" long ⅜" dia. N.C. Thread. Tolerances — medium. Production is to start as soon as possible. Contract by negotiation.

Ref. 13-31-4

The Government requires subcontracting facilities on AIRCRAFT COMPONENTS—Turnbuckle Assemblies with Cable Eye Ends and also Fork Ends. Various types and sizes. Turned, milled and drilled from Bar Stock. Material—Brass and Steel. Tolerances—medium. Quantity—135,525. Production is to start soon. Contract by negotiation.

Ref. 13-31-5

The Government is lining up facilities for the production of RADIO COMPONENTS—Cases Capacitor Units, various sizes and electrical characteristics. Voltage range is from 300 volts D.C. test to 5,000 volts D.C. test. Capacity range is from .000025 mF. to .02 mF. Tolerances: + or — 2% of rating. Quantity: 18,067 units. Production to start shortly. Contract by negotiation.

Ref. 13-31-6

The Government wishes to locate subcontracting facilities for the manufacture of ELECTRIC FUSE MOUNTS for Cartridge Type Fuses; Open Clip Type—113,000 pcs.; Transparent Shield Type—50,000 pcs. Production is to start soon. Contract by negotiation.

Ref. 2-32-1

A Penna. manufacturer is looking for subcontracting facilities for Fuze Bodies, Base Plugs and Firing Pins. Material needed for this work is Cold Drawn Steel WDX 1314 or WDX 1315. Smallest tolerances + or — .002". Quantity: 300,000 Fuze Bodies per month; 100,000 Base Plugs per month; and 250,000 Firing Pins per month. The following equipment is required: 1 5/16" Multi-spindle Automatic Screw Machine, Small Type Precision Drill Press, 1¾" Automatic Multi-spindle Screw Machine, Small Precision Drill and Tapping Machine, ½" Multi-spindle Automatic Screw Machine, and Cadmium and Zinc Plating Facilities.

Ref. 4-32-1

The Government requires subcontracting facilities for Swivel Elbows, Gate Valves and Dragheads. Steel Castings, Patterns and Machining to be furnished by contractor. Material necessary for this work is Class 2 Medium or Class 3 Hard Cast Steel. Facilities required are as follows: Lathe, Drill Press, and Milling Machine.

Ref. 9-32-1

A Maryland firm wishes to locate subcontracting facilities for Propeller Hubs (Forged and Machined). Material—Forging Spec. BH 101 SAE X 4340 Steel. Quantity—30 to 100 per month. Equipment necessary for this work is as follows: No. 4718 Size 7" x 7" x 7" Lathe, Drill Press, Broaching, Threading and Tapping, Boring 3.5".

Ref. 13-32-1

The Government requires facilities for machining Cast Steel Marine Propellers. Equipment needed for Shaping, Drilling, Boring, Profiling and Polishing; also Balancing. Over all diameter of Propellers 19". Material: Castings. Tolerances: Close. Quantity: 3000 R. H. and 3000 L. H. Production to start as soon as possible. Contract by negotiation.

Ref. 13-31-5

The Government is lining up facilities for the production of RADIO COMPONENTS—Cased Capacitor Units, various sizes and electrical characteristics. Voltage range is from 300 volts D.C. test to 5,000 volts D.C. test. Capacity range is from .000025 mF. to .02 mF. Tolerances: + or — 2% of rating. Quantity: 18,067 units. Production to start shortly. Contract by negotiation.

Ref. 13-31-6

The Government wishes to locate subcontracting facilities for the manufacture of ELECTRIC FUSE MOUNTS for Cartridge Type Fuses; Open Clip Type—113,000 pcs.; Transparent Shield Type—50,000 pcs. Production is to start soon. Contract by negotiation.

If you want a sub-contract or a sub-contractor write the Manufacturers Record and watch these pages each month.

Ref. Roystuart-33-1

The Government urgently requires subcontracting facilities for METAL SHEAVE BLOCKS. Requirements are: 3,000 Snatch Blocks with Swivel Eyes and Phosphor Bronze Sheaves; 3,000 Double Blocks with Solid Eyes and Mild Steel Sheaves; 8,000 Clump Blocks with Swivel Eyes and Mild Steel Sheaves; 3,000 Double Blocks with Free Hooks and Mild Steel Sheaves. Specifications call for Forgings—Alternate material Malleable Iron Castings. Contract by negotiation. Prints, specifications and all information at the Philadelphia office.

Ref. Chase 33-1

A Michigan manufacturer urgently requires subcontracting for AVIATION MOTOR COMPONENTS. Plain and Stepped Studs, Square and Hex Head Bolts, Castle and Sleeve Nuts, Taper and Special Pins, Special Screws and Bushings, Washers, Plugs, Caps, Nipples, Rocker Shafts, Cam Shaft Rocker Tappets, etc. Quantities: varying minimum 14,000 each of more than 100 different items. Material mostly AMS 6310 and 5024 Steel Bar. Minimum tolerance .001. Following tools or equivalent required: Screw Machines, Light Milling Machines, Drilling. Facilities for Precision Grinding, Heat Treating, Hardness Testing, Cadmium Plating.

Ref. Keefer-24-

A Penna. company wishes to locate subcontracting facilities on Adaptor and Striker Nuts. The required material is Cold Rolled Steel WD 1115. Tolerances: minimum .005. The work is to be produced at the rate of 1,500 a day, and production is to start as soon as possible. 2" to 3" Automatic Screw Machines or Automatic Turret Lathes are necessary for this work.

Southern Field Offices of the Division of Contract Distribution

ALABAMA
Birmingham
L. E. Geohegan, Mgr.
301 Phoenix Building
1706 Second Ave., N.

ARKANSAS
Fort Smith
Frank P. DeLarzelere, Mgr.
13 North Seventh Street

Little Rock
Alfred M. Lund, State Dir.
304 Rector Building
Third and Spring Streets

FLORIDA
Jacksonville
Charles C. McCubbin, State Dir.
730 Lynch Building
Main and Forsyth Streets

Miami
Forrest D. Banning, Acting Mgr.
701 Congress Building

Tampa
Arthur B. Hale, Mgr.
901 Wallace S. Building

GEORGIA
Atlanta
J. V. Booth, Acting Mgr.
116 Candler Building

KENTUCKY
Louisville
Prentiss M. Terry, State Dir.
200 Todd Building

LOUISIANA
New Orleans
R. E. Judd, State Dir.
423 Canal Building

Shreveport
John B. Ferchaud, Mgr.
916 Giddens Lane Building
Milan and Marshall Streets

MARYLAND
Baltimore
G. W. Creighton, State Dir.
1254 Baltimore Trust Building

MISSISSIPPI
Jackson
A. G. McIntosh, Acting Mgr.
605 Tower Building

MISSOURI
Kansas City
R. W. Webb, Mgr.
508 Mutual Building
13th & Oak Streets

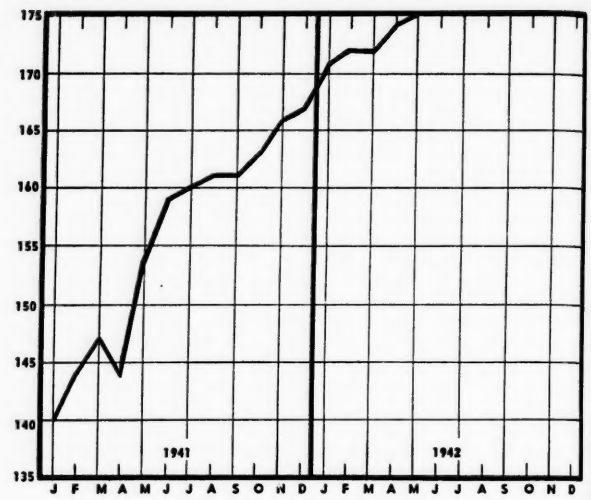
St. Louis
F. J. McDevitt, Mgr.
943 Paul Brown Building

NORTH CAROLINA
Charlotte
Eugene C. Ochsenreiter, Mgr.
New Liberty Life Building

Raleigh
Irving F. Hall, State Dir.
Sir Walter Hotel Building

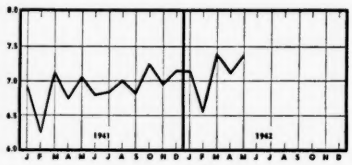
OKLAHOMA
Oklahoma City
Morton R. Harrison, State Dir.
540 Key Building
(*Continued on page* 42)

Industrial Production Trends



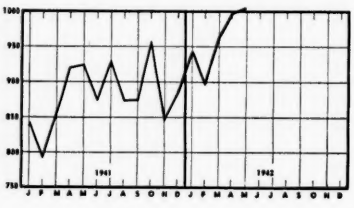
INDUSTRIAL PRODUCTION
(*Adjusted Index* 1935-39=100)

Industrial production in May, according to preliminary returns, was 175 on the 1935-1939=100 adjusted index. Revised figures for April show that, instead of a gain of only one point over March, there was actually a gain of two points. This new spurt is expected to continue through the balance of this year.



STEEL INGOT PRODUCTION
(*Millions short tons*)

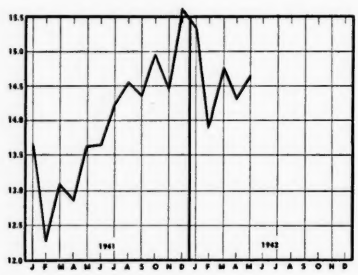
Steel production in May totaled 7,386,890 tons, based upon an average operating rate of 98.2% of capacity which is in striking contrast to the 7,044,565 tons produced in May, 1941, when the operating rate of capacity was 98.5%. Total production for the first five months of 1942 was 35,548,092 tons against 35,075,453 tons for the corresponding period of last year.



COTTON CONSUMPTION
(*Thousands of bales*)

Cotton consumption, according to first reports, shows that a new record was set in May when 1,050,000 bales were consumed and surpasses the previous all-time high of 998,754 bales, consumed during April, and brings the total for the ten months of the current season to more than nine and a quarter million bales or more than 16% larger than the 7,900,000 bales consumed in the corresponding period last season. It is also over four million bales larger than the ten-year average of 1930-1939. With the present mill outlook this rate of consumption is expected to continue.

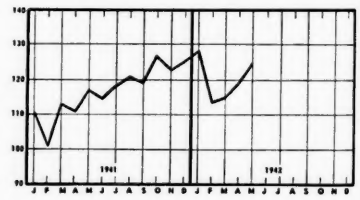
Electric power production, which dropped to 14,333,988,000 kw. hrs. in April, increased slightly during May to 14,650,000,000 kw. hrs. in May and, though the longer daylight hours are of some assistance in easing the burden, the demand for power is expected to increase substantially in the months to come. Evidence of this is seen in the average daily production which declined only 0.6% in April from the March figure.



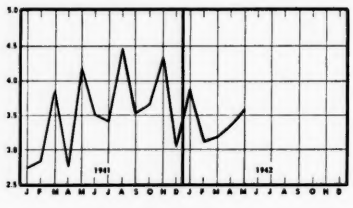
ELECTRIC POWER PRODUCTION
(*Billions kilowatt hours*)

Carloadings are estimated to have totaled 3,593,000 in May, an increase of 242,000 over the final April number of 3,351,000 cars. Though the April total declined less than it did in 1941, the May total did appear to be considerably less than last year.

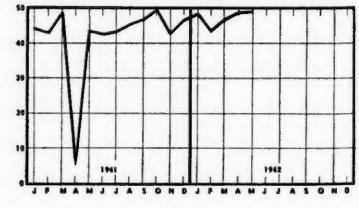
Crude petroleum production official figures show that the low production in February was maintained throughout March with 114,473,000 barrels produced. In spite of that fact, preliminary returns for April and May indicate a substantial increase with 124,450,000 barrels recorded for May production. Though the demand for petroleum and



CRUDE PETROLEUM PRODUCTION
(*Millions of barrels*)



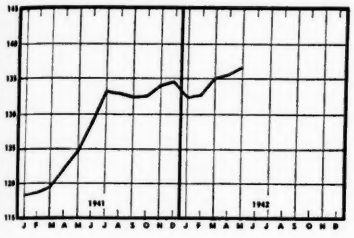
CARLOADINGS
(*Millions*)



BITUMINOUS COAL PRODUCTION
(*Millions of tons*)

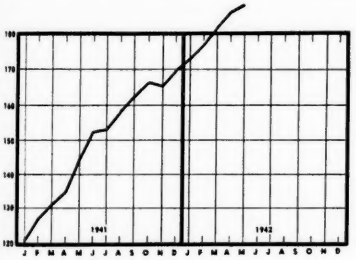
petroleum products has not declined, the effects of transportation difficulties are having a marked effect upon production.

Bituminous coal production continues its upward trend, increasing the total output in May 351,000 tons above the April figure of 49 million tons. Such a rate of production will have to be maintained, if not exceeded, if the anticipated shortage of fuel oil for next winter materializes, for the number of homes and plants now converting to coal consumption is growing larger every day.

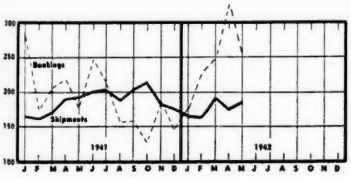


FACTORY EMPLOYMENT
(*Adjusted index,* 1923-25=100)

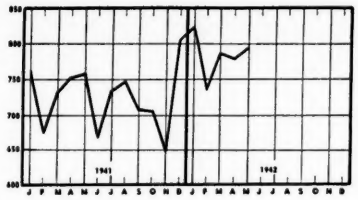
Factory employment continued its almost uninterrupted rise and stood at 137 on the 1923-1925=100 adjusted index in May, which is an increase of 1.3 points above the April mark. Total civil non-agricultural employment in April of 40,773,000 was 2,545,000 greater than in April of last year and exceeds all previous April records. The gain over the March figure was 381,000, of which 137,000 was in the field of construction where federal projects are demanding large numbers to push current construction to early completion. The monthly gain is much larger than would appear superficially because many industries show heavy unemployment due to material shortages and lay-offs, pending plant conversion to war production.



FACTORY PAYROLLS
(*Index,* 1923-25=100)

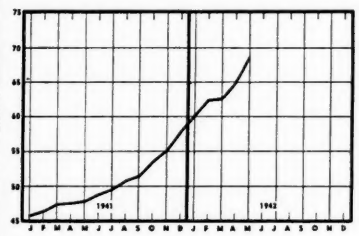


STRUCTURAL STEEL
(*Thousands of tons*)



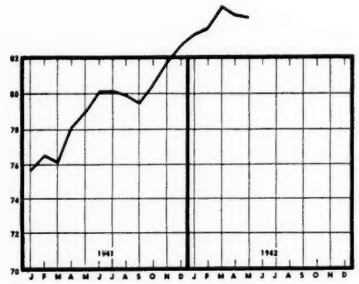
SOUTHERN PINE PRODUCTION
(*Million board feet*)

Factory payrolls increased similarly and the increase shown, according to preliminary reports, of 2.6 points from 186.4 in April to 189 in May, on the 1923-1925=100 index, is likely to be revised upward when complete returns are in. The gain between April, 1942, and April, 1941, was 51.7 points.



FEDERAL PUBLIC DEBT
April 30, 1942
(*Billions of Dollars*)

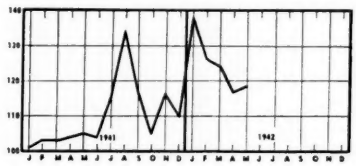
Structural steel booking which, with completion of final returns, reached 327,420 tons in April, the largest in volume of any month since 1929, declined to an estimated 255,000 tons in May. Shipments, on the other hand, which dropped to 176,894 tons in April, are believed to have risen only slightly to 185,000 tons in May. The sudden spurt in bookings is due to the expanded federal construction program.



PUBLIC WAREHOUSE SPACE
(*% of capacity occupied*)

Southern pine production, which declined slightly in April from the 787 million board feet in March, rose again during May to 794 million board feet. Though this is still well above the corresponding figures for 1941, it is still below the high total reached in January. As cantonment and similar construction gets under way southern pine production is expected to increase.

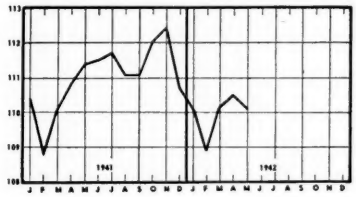
Public warehouse space occupied continues well above the expected amount with 84.3% reported as occupied during May, and even this figure may be revised upward when final returns are in as was done in March when the total reached 85% of the space occupied.



DEPARTMENT STORE SALES
(*Adjusted index,* 1923-25=100)

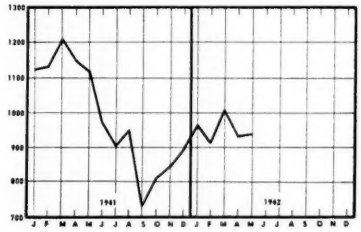
Retail trade, as reflected by department store sales on the 1923-1925=100 adjusted index, rose slightly during May to 118.3 against 117 in April. The new federal rules governing charge accounts and time payments however are expected to lower future retail sales. Total retail sales in April amounted to 4,465 million dollars.

U. S. Treasury bonds' average price, which rose to 110.5 in April against an anticipated rise to 110.3, fell back during May to the March average of 110.2. This decline however is believed to be only temporary and the average will rise slightly during the summer.



U. S. TREASURY BONDS
(*Average price per* $100 *bond*)

Commercial failures remained fairly constant during May at 937 against 938 in April. The latter month was not only well below the 1,048 recorded for March but the total liabilities also declined materially in April to 9,282,000 dollars from 12,011,000 dollars in March.



COMMERCIAL FAILURES
(*Total number*)

War Statistical Progress Report

United States Authorized Program and Purchases
June, 1940, to Latest Reporting Date

	Authorized Program As of May 31	*Disbursements As of May 31*
	(In millions of dollars)	
Total	$166,435	$30,615
Army	84,468	13,988
Navy	45,307	8,974
Lend-Lease	18,410	3,433
Other war agencies	18,250	4,220

	(In millions of dollars)
United States Program and Purchases as of April 30	
Authorized program	$166,435
Contracts and other commitments	$108,176
Disbursements	$ 26,762

Sales of War Bonds

Cumulative, May 1941-May 1942	$ 6,023,000,000
May 1942	$ 634,000,000
May quota exceeded	5.7%

Federal Debt Under Statutory Limitation

Outstanding, as of May 31, 1942	$70,156,000,000

Foreign Governmental Transactions in the United States

Total obligations, Nov. 1939-April 30, 1942	$ 4,096,000,000
Payments on orders, Nov. 1939-April 30, 1942	$ 2,974,000,000

Plant Expansion

Government commitments for war plant expansion, June 1940-April 30, 1942; 1,644 projects	$12,131,000,000
Private commitments for war plant expansion, June 1940-April 30, 1042; 7,836 projects	$ 2,574,000,000

Employment

	Number	*% change from year earlier*	*% increase from June 1940*
National labor force, April	53,400,000	....	not available
Total civil non-agricultural employment in April	40,773,000	+ 7	14
Total farm employment, May 1, 1942	10,796,000	+ 1	1
Unemployment, April	3,000,000	—55	not available

Public War Housing Progress

	Family Dwelling Units	*Trailers Portable and Houses*	*Single Dwelling Units*
Housing units—cumulative to May 30			
Programmed	337,505	19,787	61,484
Construction contract awards	219,870	13,345	27,396
Available for occupancy	100,909	7,814	10,863

Annual Turpentine and Rosin Report

The eighth annual naval stores report of the U. S. Department of Agriculture for the 12-month season of April 1 to March 31 shows production for the year ending March 31 totaled 548,796 fifty-gallon barrels of turpentine and 2,135,593 five-hundred-pound barrels of rosin —17,545 barrels less of turpentine and 11,272 barrels less of rosin than the year before. There was an increase in liquid "sulphate wood rosin" from 18,358 tons in 1940-41 to 26,887 tons in 1941-42.

Georgia leads in naval stores production, the record for the past season showing 189,532 barrels of gum turpentine. Other States in order of production are Florida, Alabama, Mississippi, the Carolinas, Louisiana and Texas. Georgia produced two-thirds of the crop of gum turpentine.

Turpentine consumption was credited largely to four groups—paint, varnish and lacquer producers; chemical and pharmaceutical houses; shoe polish and show materials manufacturers; and railroads and shipyards. The rosin went principally into paper sizing, soap, chemicals and pharmaceuticals, ester gum and synthetic resins, paint, varnish and lacquer, floor and wall coverings, oils and greases, foundry supplies, adhesives and plastics, printing ink, shoe polish, and rubber.

Figures on imports and exports are "not available for publication."

Southern Field Offices of WPB's Contract Distribution Division

(Continued from page 39)

OKLAHOMA
Tulsa
John H. Keys, Mgr.
435 Kennedy Building

SOUTH CAROLINA
Columbia
D. E. McDuffie, Acting Mgr.
204-6 Manson Building
1207 Taylor Street

TENNESSEE
Chattanooga
P. E. Shacklett, Mgr.
909-10 James Building

Knoxville
W. W. Mynatt, Acting Mgr.
204-5 Goode Building

Memphis
Arthur M. Field, State Dir.
2112 Sterick Building

Nashville
W. G. Whitsitt, Mgr.
1014 Stahlman Building

TEXAS
Dallas
A. J. Langford, Mgr.
Fidelity Building

El Paso
L. A. Wilke, Mgr.
222 El Paso National Bank Bldg.

Houston
I. M. Griffin, Mgr.
C. J. Crampton, State Dir.
Ninth Floor Electric Building
1016 Walker Avenue

San Antonio
P. E. Locke, Mgr.
816 Majestic Building
Houston and Navarro Streets

VIRGINIA
Norfolk
J. L. Mason, Acting Mgr.
526 Dickson Building

Richmond
J. L. Mason, State Director
10 South Fifth Street

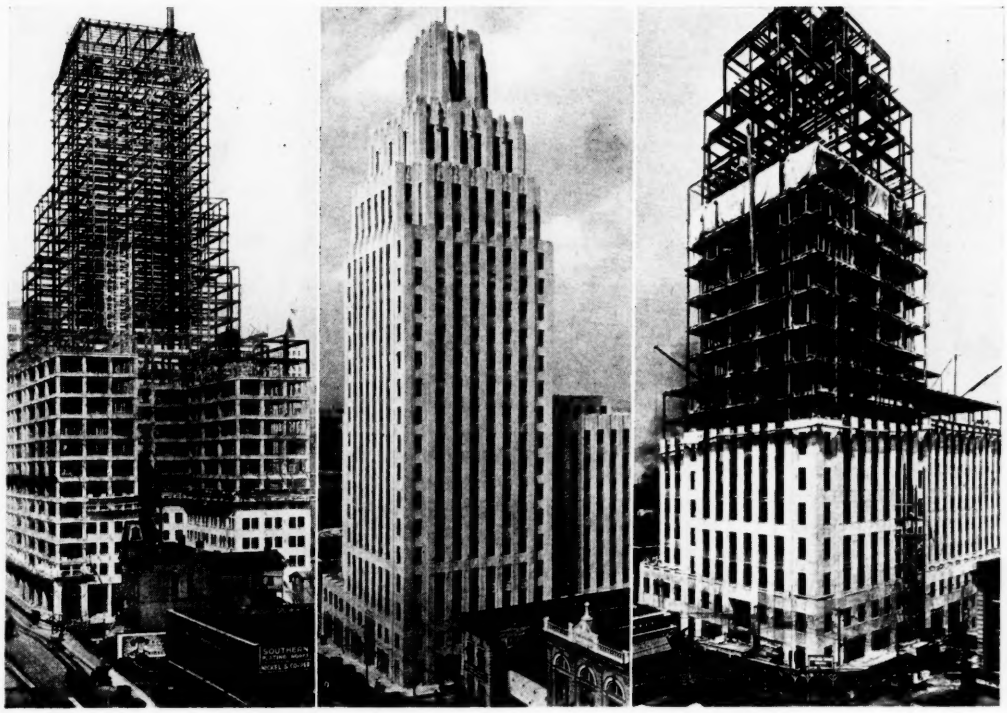
Roanoke
J. L. Mason, Acting Mgr.
118 Kirk Avenue, S. W.

WEST VIRGINIA
Charleston
E. J. McClees, Mgr.
John A. Kennedy, State Dir.
24 Capital City Building

Clarksburg
Alex H. Cooper, Mgr.
Empire National Bank Bldg.

Huntington
Frank Enslow, Mgr.
309-11 West Virginia Building

Wheeling
E. C. Drake, Mgr.
Fidelity Building
1025 Main Street



STRUCTURAL STEEL BY VIRGINIA BRIDGE COMPANY

The Construction Picture Changes

The picture of construction changes according to demand. Yesterday it featured buildings like these, but today the emphasis is entirely on the enormous factories and other types of construction essential to winning the greatest production race in history.

It's no military secret. Everybody is aware that structural steel is playing the leading role in the construction picture of today—a fact that is patriotically accepted regardless of inconvenience and the sacrifice of civilian enterprises.

But we know the picture will change again when the important job at hand is completed, and when it does we will be better prepared than ever before to take the lead in the construction program of tomorrow. To our nearly fifty years of structural steel fabricating and erecting experience will be added all the valuable experience gained today. New ideas are being advanced and improved methods developed that will mean structural designs of greater utility, convenience and economy. This accumulated know-how will be yours in Virginia Bridge engineering, fabricating and erecting service.

Virginia Bridge

STEEL STRUCTURES

All Types

Plants:

Roanoke, Va.
Birmingham, Ala.
Memphis, Tenn.

VIRGINIA BRIDGE COMPANY

(South's Largest Structural Steel Fabricator)

Roanoke Birmingham Atlanta Memphis New York Dallas

UNITED STATES STEEL

WPB Helps Manufacturers Borrow $54,476,358 In May

The Bureau of Finance of the War Production Board reports that during the month of May it assisted manufacturers engaged in war production to obtain $54,476,358 of financing from local banks, Federal Reserve Banks, the Reconstruction Finance Corporation, the Army, Navy, Maritime Commission and other public and private agencies.

This compared with $55,109,966 in the preceding month. This financing was utilized by 429 companies throughout the country, compared with 289 companies in April. The Bureau has representatives in 35 War Production Board field offices who give advice and assistance to firms engaged in war production or seeking war orders. It makes no loans itself but directs qualified firms to public and private agencies that do. Representatives in the South are:

ARKANSAS
Little Rock
War Production Board
304 Rector Building

FLORIDA
Jacksonville
James J. French, Jr.
War Production Board
730 Lynch Building

GEORGIA
Atlanta
Clarence Knowles
War Production Board
Suite 150, Hurt Building

KENTUCKY
Louisville
Joseph T. Simmons
War Production Board
200 Todd Building

LOUISIANA
New Orleans
G. L. Woolley
War Production Board
Room 423 Canal Building

MISSOURI
Kansas City
Alexander R. Silberberg
War Production Board
508 Mutual Bldg.
13th and Oak Streets
St. Louis
R. Jewett Jones
War Production Board
Boatmen's Bank Bldg.

TENNESSEE
Knoxville
A. P. Frierson
War Production Board
202-204 Goode Building
Memphis
St. John Waddell
War Production Board
2112 Sterick Building

TEXAS
Houston
O. W. Jackson
War Production Board
1016 Walker Avenue

WEST VIRGINIA
Charleston
F. O. Lamb
War Production Board
Capital and Quarrier Streets

Further Allocation of Materials Assured

Another step toward strict allocation of scarce materials and improved control of inventories was taken recently when J. S. Knowlson, Director of Industry Operations, announced that all but a few classes of companies requiring more than five thousand dollars worth of metal for the third calendar quarter of 1942 must apply for priority assistance under the Production Requirements Plan before July 1.

More than 10,000 companies, including most of those handling large war contracts, will be required to operate under Production Requirements Plan by the terms of a revision of Priorities Regulation No. 3 which will be issued within a few days. About 7,000 companies are now using the plan.

Preference ratings are assigned under the Production Requirements Plan only for specified quantities of materials to be obtained during a calendar quarter. Major metal using plants affected by the revised regulation will not be permitted to use any preference rating except ratings assigned to them by Production Requirements Plan during the third quarter of 1942. During that quarter they will not be allowed to accept delivery of any scarce metal in excess of a quota established for them under the plan.

It is anticipated that only the following classes of companies which will use more than five thousand dollars worth of metal in the third quarter will continue under existing procedures instead of under the Production Requirements Plan: Producers engaged in primary production of basic metals; distributors; wholesalers; builders; companies engaged in transportation; utilities, including light, heat, water and gas companies; mining companies and petroleum enterprises; communications, including telephone and telegraph; companies engaged in sewage and drainage operations.

All large metal users are required to report their use of metal to the War Production Board on Form PD-275. Those affected by the revision of Priorities Regulation No. 3 may use exactly the same information in filling out Production Requirements Plan application Form PD-25A, adding the other information called for.

WPB Classification System Will Trace Use of Materials

A simple, uniform classification system which will enable the War Production Board to trace the flow of materials in terms of end use, from primary producers to finished products was announced recently.

The new Allocation Classifications, to be used on purchase orders and reports to WPB, will supersede a variety of use classifications now required under Materials ("M") orders.

Allocation Classification symbols as now announced must be used on all orders placed by manufacturers, fabricators, primary producers, etc., after June 30, 1942, and on all such orders which call for deliveries after July 31, regardless of when the orders are placed. To facilitate use of the symbols, they should be placed on purchase orders at an earlier date wherever possible.

Purchases by retailers, and purchases by distributors for resale are exempt from the requirements, which is embodied in Priorities Regulation No. 10.

Applications under the Production Requirements Plan for the fourth quarter of this year must identify the end use of materials for which application is made by means of this standard Allocation Classification. The symbols will thus become a principal method of checking the requirements and distribution of materials for war and essential civilian purposes.

Atlantic Coast Line Report

The 1941 annual report of the Atlantic Coast Line Railroad Company is a volume replete with interesting facts pertaining to the operations of the road and its financial situation. It is the 108th annual report of a carrier that has had a large part in the development of the eastern states of the South.

Being such a vital part of the industrial and agricultural growth of this area it is of special interest to note some of the figures of progress the report sets forth.

Net operating revenue compared with 1940 increased $7,323,719.65 or 194.92% and this in the face of tax increases of $3,100,000.00 and pay roll increases of $4,580,558.22 or 19.08%.

Freight revenue for the year increased 34.41% and passenger revenue 50.28%. The number of revenue passengers carried one mile, which is the basic unit of passenger transportation, was 693,252,065, the greatest for the road of any year on record.

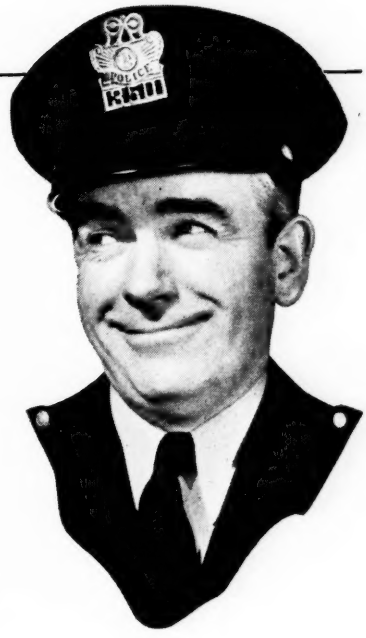
During the year orders were placed for additional new equipment costing an aggregate of $12,025,000 as follows:

3 Diesel-electric 6,000 H.P. Road locomotives,
6 Diesel-electric 1,000 H.P. Switch locomotives,
16 Light Weight Steel Passenger Train cars,
1,630 Box cars,
700 Automobile Box cars,
300 Furniture Automobile cars,
200 Gondola cars and
100 Phosphate cars.

Since December 31, 1941 orders have been placed for other new equipment consisting of Diesel-electric locomotives and cars to cost approximately $8,450,000.

The report deals in an interesting way with various factors bearing upon general progress of the South Eastern section of the country, such as New Pipe Lines, National Defense, the $200,000,000 increase in farmers income of the five South Eastern states.

"Drop in some morning about 10:30, McGinnis, *and I'll show you a traffic jam!*"



"Sure, Mac, I know—you run up against parades, football crowds—and a World Series now and then. But we're handling traffic jams every day.

"This war is taking some of the traffic off your beat and putting it on mine—taking it off the streets and putting it on the telephone lines.

"And we're getting short of materials. The stuff that used to make switchboards and cables now goes to the shooting part of the war.

"But we've found the public good-natured and helpful just as you have. The trouble began with Hitler and will end when we finish with him."

LONG DISTANCE *helps unite the nation*

New Industrial Plants and Expansions in the South

(*Continued from page* 46)

HOT SPRINGS—mining—National Diamond Mines, Inc., organized by R. A. Chitwood and L. A. Westmoreland; develop diamond mines; will expend $100,000 on its lease of 120 acres near Murfreesboro.

FLORIDA

Pipe line—J. J. Mansfield introduced bill in House of Representatives, which was referred to Committee on Rivers and Harbors, to authorize construction of pipe line across northern Florida from about Port St. Joe to a point near Jacksonville on the St. Johns River; also authorizing enlargement of existing intracoastal waterway on the Gulf to a depth of 12 ft. and a width of 125 ft. and its extension south from Corpus Christi to Brownsville, Tex. and easterly from Apalachicola Bay to St. Johns River.

Power facilities—Federal Power Commission declared a power emergency to exist in northeastern part of Florida, particularly in Alachua, Bradford, Clay, Duval, Putnam and Union Counties, and in order to meet demands of war agencies and industries, ordered that temporary interconnections of facilities be established to bolster power supply in and around the cities of Jacksonville, Gainesville and Starke; interconnections and interchanges of electric energy ordered are: Directly between facilities of Florida Power and Light Co. and municipally owned electric facilities of City of Jacksonville; directly between facilities of Florida Power Corp. and municipally owned electric facilities of City of Gainesville; between Florida Power and Light Co. and municipally owned electric facilities of City of Starke, through a transmission line to be constructed by Clay Electric Cooperative Association, Inc.; all interconnections have been approved.

SANFORD—pipe line—War Department engineers, reported, studying proposal to build a pipe line from Tampa to Sanford.

GEORGIA

Assembly plant—Area Engineer, Bellcraft, received bids May 29 for foundations only for assembly plant; Robert & Co., Engrs., Atlanta; work includes grading, reinforced steel, cement forms; following are prospective estimators: Mion Construction Co., 377 Techwood Drive, N. W.; Beers Construction Co., 70 Ellis St., N. E.; MacDougald Construction Co., Hemphill Ave., N. W.; Smith-Pew Construction Co., 2117 Piedmont Rd., N. E.; Griffin Construction Co., 452 Spring St., N. W.; H. B. Nelson Construction Co., Red Rock Bldg.; all Atlanta; Fiske-Carter Construction Co., Greenville, S. C.; A. Farnell Blair, 215 Church St., Decatur, Ga.; Horace B. Garrett, Ashland, Ala.; Cornell-Young Construction Co., Macon, Ga.; Hillyer & Lovan, Jacksonville, Fla.; Claussen-Lawrence Construction Co., Augusta, Ga.

EATONTON—creamery — Eatonton Cooperative Creamery, James C. Park, Mgr., erect $60,000 creamery.

KENTUCKY

LOUISVILLE — plant — Curtiss-Wright Corp., Buffalo, New York, will erect $12,000,000 airplane assembly plant on Crittenden Drive; G. J. Brandewiede, of St. Louis, Mo., will be general manager of plant.

LOUISIANA

SHREVEPORT—pipe line — Atlas Line Corp., expend $300,000 for reconditioning pipe line between Kilgore, Tex. and Shreveport.

MARYLAND

Pipe line—Montgomery County Commissioners, Rockville, granted permission to Sinclair Refining Co., to pass an oil pipe line through Montgomery County in northeastern tip near Fairland; not to exceed 8-in. in diameter; line extends from Pennsylvania through Howard, Montgomery and Prince Georges counties into Washington.

BALTIMORE—shop and powerhouse—Bethlehem Steel Co. having plans and specifications revised for shop and power house, and will probably call for new bids in about 1 month.

FAIRFIELD—sub-station — Bethlehem-Fairfield Shipyard, Inc., received bids May 28 for sub-station and compressor house; Consolidated Engineering Co., 20 E. Franklin St., Baltimore, and Irwin & Leighton, Inc., 1505 Race St., Philadelphia, Pa., estimating.

MISSOURI

KANSAS CITY—plant—Pratt & Whitney division of United Aircraft Corp., East Hartford, Conn., establish an $85,000,000 aircraft engine plant on 240-acre site north of Bannister Rd. and east of Holmes Rd.

ST. JOSEPH—serum plant—Lederle Laboratories, Inc., 30 Rockefeller Plaza, New York, will operate a hog serum manufacturing plant in building now being remodeled.

ST. LOUIS — addition — Defense Plant Corp., Washington, D. C., acquired tract with 230 frontage feet on St. Louis-San Francisco R. R. line for proposed $11,443,000 addition to plant of Scullin Steel Co., 6700 Manchester Ave.

ST. LOUIS—addition—Keithly Construction Co., 5029 Miami St., low bidder for addition, N. W. corner of Spring and Rutger Sts., for City Pattern & Mold Co.; Emil H. Niemann, Archt., 3816 Shaw Ave.; brick; 1-story; 50 x 65 ft.; concrete foundation; composition roof.

ST. LOUIS—extension—Carter Carburetor Corp., acquired site west side of Spring Ave. north of St. Louis Ave.

SPRINGFIELD — cannery — Fred W. Graves of Jacksonville, Tex., interested in establishment of canning plant.

NORTH CAROLINA

CHARLOTTE—plant — Federal Defense Plant Corp., will finance construction of plant to be operated by U. S. Rubber Co.

CHARLOTTE—plant—Sanderson & Porter, 1903 Liberty Life Bldg., Charlotte, and New York, are engineers for proposed shell loading plant near Charlotte to be operated by U. S. Rubber Co., Akron, Ohio; cost $10,000,000.

OKLAHOMA

PONCA CITY—plants — Representative Rizley announced that Continental Oil Co., acting as agent for Defense Plants Corp., a subsidiary of RFC will contract with private firms for constructing 2 plants to manufacture aviation gasoline and toluene; work to begin shortly.

SOUTH CAROLINA

NEWBERRY—grain mill—Spartan Grain & Mill Co., 239 Gross St., Spartanburg, acquired 200-bbl. flour mill formerly owned by Farmers Oil Mill; storage of 50,000 bu. of grain is being provided; new equipment being installed; mill will have a daily flour capacity of 200 bbls. in addition to modern plant for mixed feed.

TENNESSEE

Gas pipe line—Kentucky-Tennessee Natural Gas Corp. of Louisville, Ky., issued a certificate of permission to construct a 62-mile pipe line for natural gas to Knoxville and Kingsport from Knox County, Ky., gas fields; supply approximately 8,000,000 cu. ft. of gas daily; estimated cost $1,500,000.

JACKSON — processing plant — Federal Surplus Commodities Corp., W. Hillsman, erect processing plant; storage plant for fruit.

MEMPHIS—plant — International Harvester Co., Chicago, Ill., acquired a 260-acre tract on the Loosahatchie River, 4 miles from Memphis, near Highway 51, for erection of farm machinery manufacturing plant; estimated cost $5,000,000; equipment to be manufactured will include cotton planting and cultivating equipment and the recently developed International Harvester cotton picker.

MEMPHIS—plant—Caine Steel Co., L. J. Caine, Pres., 1820 N. Central, Chicago, Ill., acquired 18 acres at Weakley and N. Seventh St. for erection of steel fabricating plant.

TEXAS

BEAUMONT—Generator, etc.—Teleweld, Inc., Beaumont, low bidder on general contract for generator building for Pennsylvania Shipyards; American Automatic Sprinkler Co., for sprinkler system; Haile & McClenden, Engrs., San Jacinto St., Houston.

CORPUS CHRISTI—gasoline plant—Pontiac Refining Corp., Edwin Singer, Pres., 3400 Lawrence Drive, begin work soon on high octane gasoline plant; will be operated by Great Southern Corp., a subsidiary; 4 recycling plants will supply raw materials from Stratton-Agua Dulce gas and distillate producing areas of Nueces county; plants included the Lockhart Oil Co. of Texas, Gulf Plains Corp. and Coastal Recycling Corp.; these plants have awarded contracts for construction of butane recovery additions and installations at their plants; a 40-mile, 4-in. butane line from central recycling area will serve the proposed plant.

DONNA—addition—Taormina Corp., construct processing plant addition, 225 S. 9th St.; 1-story; structural clay tile; composition roof; concrete floor slabs.

HOUSTON—plant—U. S. Engineers will handle all contracts on building, foundations and installation of equipment for expansion program for Texas Electric Steel Casting Co., Tom Shartle, Pres.; cost of buildings, $65,000; company will purchase all machinery and equipment at cost of $600,000.

LONGVIEW—expansion—Madaras Steel Corporation of Texas, reported, have funds available for completion and expansion of steel plant.

PHARR—Mock-Tex Produce Co., D. McLendon, erect packing plant, 43 State St.; 1-story; frame and sheet metal; metal sides and roof.

PORT ARTHUR—plant—Cities Service Oil Co., granted $18,000,000 in Federal aid for construction of plant.

WEST VIRGINIA

HUNTINGTON — expansion — International Nickel Co., Robt. C. Stanley, Pres., Guyan River Rd., plans $3,000,000 expenditure for producing special material.

SOUTH

Phillips Petroleum Co., Bartlesville, Okla., will design, build and operate 2 plants for manufacture ingredients of synthetic rubber; to be located in Southwest.

House Rivers and Harbor Committee approved measure designed to relieve oil shortage through connection of East Coast and Gulf of Mexico inland waterway systems and through construction of pipe line across portion of Florida; bill authorizes an appropriation of $144,000,000 for construction and for deepening and widening of the gulf system; pipeline estimated to cost $10,000,000 would start from Port St. Joe, Fla., with terminus at Jacksonville.

Petroleum Co-ordinator Ickes will submit to War Production Board a third application for priorities on metal needed for construction of proposed 1500 mile pipeline from Texas to New York-Philadelphia area; line will be owned by several oil companies; estimated cost $80,000,000.

Plantation Pipe Line Co., Charles Younts, Atlanta, Ga., Pres., has Federal approval for several hundred miles of extensions and additional pumping equipment to increase daily capacity by 30,000 bbls.; will use second-hand pipe and install second hand pumps; line will be extended from southern terminal at Baton Rouge, La. to East Texas oil production fields and from northern terminal at Greensboro, N. C., to Norfolk, Va.

WORTHINGTON MACHINERY—

Booklet—devoted to Worthington Multiple Pressure Reducing Orifice for service in boiler feed by-pass lines.

Bulletin L-675-B1—illustrating and describing Worthington Feather Valve Compressors, 75 to 3000 horsepower—horizontal duplex, motor driven, direct connected and belted.

Worthington Pump and Machinery Corporation, Harrison, N. J.

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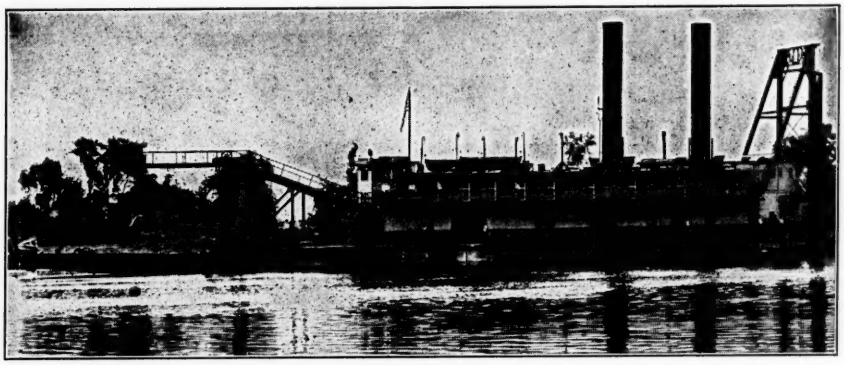

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New Methods and Equipment

Asbestos Protective Suit

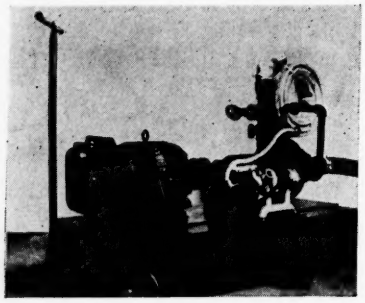
Designed to provide instant and complete protection against flame hazards in emergency, a One-Piece Asbestos Protective Suit is announced by Mine Safety Appliances Company, Pittsburgh, Pa. The suit consists of an upper-and-lower durable asbestos garment securely sewed together, with helmet, gloves and boots attached to completely enclose and protect the wearer. The unit prevents the entry of flames, insulates against heat, guards the head from injury by falling or flying material. The M. S. A. Asbestos-Protective Suit is made in an universal size only, with tabs at each side and back to adjust length.

One-Piece Asbestos Protective Suit

Special Pumps For Small Plants and Towns

Dangers of incendiary bombs have brought a keener sense to home owners, factory managers and municipal officials of the importance of ever-ready pumping equipment in case of fire. Fire pumping units recently developed by Fairbanks, Morse & Co., Chicago, Ill., now afford small plants and towns adequate fire protection at a moderate cost. One of these units is composed of a 4-inch Figure 5813 F-M fire pump driven by a Ford-Mercury engine. Turning at 2500 RPM, this drive is of sufficient speed to be direct connected, eliminating the expense of gear drive necessitated when a slow speed engine is connected to a high speed pump.

Fairbanks-Morse has also developed a portable pumping unit for a variety of services—municipal and otherwise. This is a 2-inch non-clogging F-M sludge pump direct connected to a 3 H.P. F-M splash-proof motor and mounted on a standard warehouse truck with 8-inch rubber-tired wheels. The pump is primed by means of a hand-operated bracket-type pump mounted on the truck platform with its suction connected to the top of the volute through a ¾-inch pipe line equipped with a shut-off valve. Such a unit may be used with other F-M pumps as well as with the sludge pump.



Four-inch Figure 5813 F-M Fire Pump

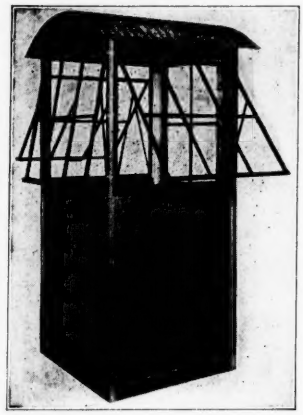
Self-Aligning Idler Makes Conveyor Belts Last Longer

Designed to keep the belt central on its supporting idlers and thus make conveyor belts last longer, a new self-aligning idler for flat conveyor belts, both return and carrying, has been announced by the Chain Belt Company, Milwaukee, Wis. Operation is sensitive and instantaneous. If the conveyor belt runs to one side for any reason, it has a tendency to swivel the idler in a horizontal plane, and if this in itself is not sufficient to cause the idler to swing enough to force the belt to throw back immediately, the belt will continue traveling to one side until it contacts the counterweighted end disc, which is slightly larger in diameter than the idler roll. Contact with the counterweight tends to rotate it, but since it is a counterweight it resists this tendency to rotate and produces a counterforce on the idler. This causes the idler to swivel rapidly, throwing the idler more out of line which then immediately forces the belt to swing back the other way. REX flat belt self-aligning idlers are sturdily built units, using the same principle of construction as the REX self-aligning troughing idlers that have operated so successfully. Chain Belt makes a complete line of anti-friction bearing belt idlers, with a size and type for every belt-conveying need.

Self-Aligning Belt Idler

Steel Insulated Guard-House for Defense Plants

For the protection of anti-sabotage plant guards, The Edwards Manufacturing Co., Cincinnati, Ohio, has announced a new steel insulated guard house which is now being used in a large number of plants having Army and Navy contracts. Made in two standard sizes—48 inches by 48 inches square, and 54 inches by 54 inches square, with a ceiling height of 6 feet, 10 inches—the guard house is in use at important utilities, Army and Navy Ordnance plants, machine tool factories, and all types of defense industries. It is of heavy arc-welded steel construction, completely assembled. Wall surfaces and ceiling are insulated and mounted on a heavy wood floor. The unit has four-way vision, bronze Yale cylinder lock, utility shelf, and one shop-coat of battleship gray paint. It is easily portable, storm and fireproof, and is declared to offer adequate protection.



Steel Insulated Guard House

Metal Working Machinery Output Increased 60 Percent

The value of new machine tools, presses and other metal working machinery shipped during April was $114,100,000. Shipments of machine tools alone amounted to 25,415 units, with a total value of $103,364,496. During March, 24,300 units, valued at $98,358,399 were shipped.

Production of metal working machinery has reached a rate of more than $1,300,000,000 a year and is steadily on the increase. Last year the value of metal working machinery was about $840,000,000 and the present going rate represents an increase of more than 60 percent.

Compared with the same month of last year, the April value for all metal working machinery is an increase of 72 percent.

On the basis of comparable companies which reported during March and April, the value for the latter month represents a 5 per cent increase. On a per day comparison between the two months, April represents an increase of 8 percent.

Industrial News

Jeffrey Manufacturing Company Receives Navy "E" Award

In an interesting presentation program held in the Company's plant at Columbus, Ohio, May 12, The Jeffrey Manufacturing Company received the Navy "E" Award for production achievement. The presentation was made by Captain Robert Henderson, USN, Retired, in an appropriate address, and the acceptance speech was made by Robert W. Gillespie, President, The Jeffrey Manufacturing Company. Presentation of the Navy "E" Insignia was made by Commander G. H. Bowman, USN-Retired, and the acceptance speech for the employees was made by O. R. "Dick" Ehret, who has had 45 years' service with the company. A response was made by H. W. DeBruin, Vice President in Charge of Manufacture.

Porter Company Plans Expansion

President T. M. Evans of H. K. Porter Company, Pittsburgh, Pa., announces that his company plans to open a plant at Blairsville, Pa., for the expansion of its facilities in the war effort. It is anticipated that when the plant is in full operation it will employ between 150 and 200 men. Regular products of the company include locomotives and a complete line of chemical processing equipment.

Equipment Corporation of America Expansion

Executing the second part of an expansion program necessitated by war needs, the Equipment Corporation of America, Chicago, Ill., has purchased a 250-foot brick building adjacent to its present properties in Chicago. The building will be used to house rebuilt construction equipment. The Equipment Corporation of America is among the largest national organizations for rebuilding and marketing construction equipment. In addition to its Chicago facilities, it owns and operates plants in Philadelphia and Pittsburgh.

Post Made General Sales Manager Industrial Finishes of Pittsburgh Plate Glass Company

Herschel E. Post, manager of the paint factory at Houston, Texas, of Pittsburgh Plate Glass Company, Pittsburgh, Pa., has been appointed general sales manager of industrial finishes of the company, with headquarters at Pittsburgh. John A. Hanley, production manager, temporarily will manage the Houston plant.

Helms Made General Manager of Sales of Berger Manufacturing Division of Republic Steel

R. W. Helms has been appointed General Manager of Sales of Berger Manufacturing Division of Republic Steel Corporation, Cleveland, Ohio. Born in Texas, Mr. Helms was graduated in 1921 from the School of Commerce, University of Texas, with the degree of Bachelor of Business Administration. Before graduating, he served in the Air Corps and Field Artillery of the first World War.

Belmont Iron Works President Receives Honorary Degree

Joseph Grundy Shryock, President and Chief Engineer of the Belmont Iron Works, structural steel engineers, Philadelphia, was the recipient of an honorary degree of Doctor of Science in Engineering at the Pennsylvania Military College, Chester, Pa., May 19. Mr. Shryock was graduated from the college in 1900.

Expanding Use of Diesel Engines

The Cooper-Bessemer Corporation, Mount Vernon, Ohio, manufacturers of Diesel engines is one of the oldest engine building organizations in the United States.

Since 1923, when the first commercial Diesel locomotive was put into service in this country, the economical superiority of the unit has been further attested by the very small number of parts replacements or servicing required. In addition to their highly increased favor for railroad usage, Diesel engines are becoming more and more popular in the petroleum and gas industries, forestry and wood industries, fishing and marine industries, mining and quarrying industries, central power station usage, municipal utilities, general manufacturing, public buildings and institutions, and in the construction fields.

AMERICAN MONORAIL
EQUIPMENT

Helps Conserve Energy and Increases Efficiency

AMERICAN MONORAIL Overhead Handling Systems play a vital part in speeding up production in hundreds of plants working on war materials.

American MonoRail Equipment relieves men from lifting and carrying and enables them to give full time to production—keeps materials and products on scheduled routes, without congestion, delay and damage in transit.

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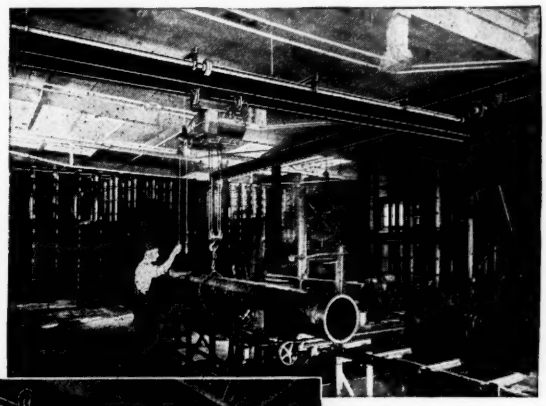
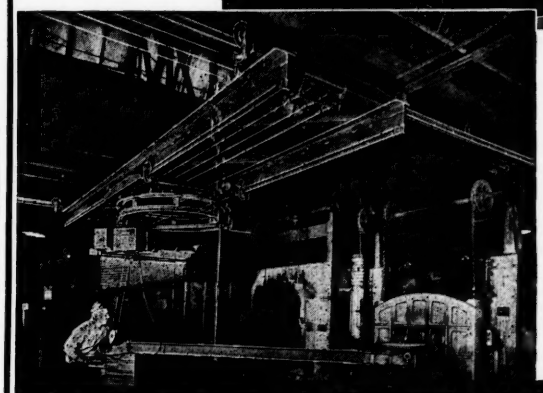
• Easy movement of hard-to-handle loads on a simple power operated MonoRail crane.



• Special double bridge crane with swivel features for quick removal and quenching annealing pots.



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Trade Literature

PUMPS AND COMPRESSORS—
Bulletin W-312-B2C—Illustrating and describing Worthington Centrifugal Pumps, single-stage volute, Type L, Nos. 3 to 6, capacities to 2000 G.P.M., heads to 300 feet; Specification L-640-82, for use with Bulletin L-611-B8A — illustrating and describing Worthington single horizontal, single stage compressors, Types HB and HS, 9-inch, 11-inch, and 13-inch stroke, equipped with Feather valves, tapered roller bearings, motor and steam driven.
Worthington Pump and Machinery Corporation, Harrison, N. J.

"Helping Industry Help America"—A booklet issued by Sun Oil Company, 1608 Walnut Street, Philadelphia, Pa., presents actual case histories of how engineering service in applying petroleum products in metal working, general lubrication, processing, mining, textile manufacturing and other operations is helping American industry produce more. The publication should be helpful to industrial executives, plant production men, and shop superintendents.

"Let's Write Good Letters"—Under the foregoing title, this book, like its predecessor, "Making Letters Talk Business," was published to aid Armco employees write better letters. It should be helpful to executive and stenographer, transcriber and correspondent. Special sections are devoted to words, phrases, sentences, paragraphs, organization of thought, sales letters, practical suggestions for office employees, managers and beginning stenographers, essential English, mechanics of punctuation, and report writing. The book is priced at $1.00 per copy, plus a sales tax of 3 per cent in Ohio, and may be ordered only from **The American Rolling Mill Company,** 703 Curtis Street, Middletown, Ohio.

GAS AND OIL BURNER—
Folder No. 203—illustrating and describing improved Peabody combined gas and oil burner, Types A and H.
Peabody Engineering Corporation, 580 Fifth Avenue, New York, N. Y.

ELECTRONIC WELDING TIMER—
Booklet B-3079—6 pages, illustrating and describing sequence and automatic weld timers, claimed to increase weld production and reduce outage time; presents application information and special design features, also diagrams showing complete sequence of operation in pulsation welding and how the electronic timer and other controls fit into the average resistance welding circuit.
Westinghouse Electric and Manufacturing Company, Department 7-N-20, East Pittsburgh, Pa.

SPEEDING THE VICTORY PROGRAM—
Fostoria "Flashes" Nos. 442 and 542—official publications which should be interesting to industrialists and plant executives who are seeking new and better production methods for solving some "bottleneck" problems.
The Fostoria Pressed Steel Corporation, Fostoria, Ohio.

STANDARD MORSE TAPER LIVE CENTERS—
Catalog—4 pages, illustrating and describing standard Morse taper live centers.
Sturdimatic Tool Co., 5224 Third Ave., Detroit, Mich.

WOVEN WIRE AND WIRE CLOTH PRODUCTS—
Catalog C—Illustrating and describing Newark woven wire screen and wire cloth products, 116 pages. The publication presents a glossary of wire cloth terms, information as to selection, ordering and testing wire cloth, how to calculate weight, space screens, space and mesh cloth, galvanized wire cloth, backing cloths, centrifugal cloths, etc.
Newark Wire Cloth Company, 351-365 Verona Ave., Newark, N. J.

BRASS, BRONZE AND IRON ALLOYS—
Engineering Reference Catalog—illustrated, presenting details concerning P-M-G, a silicate bronze made without tin, and the composition, application and physical properties of 31 other alloys; publication pictures products made of Cramp alloys, describes effects of various elements on iron and discusses terms used in materials testing.
Cramp Brass and Iron Foundries, Division of The Baldwin Locomotive Works, Philadelphia, Pa.

PRACTICAL ARC WELDING—
Book—"Lessons in Practical Arc Welding" by Chaffee, 188 pages, paper cover, containing complete series of 41 arc welding lessons offered at Hobart Trade School; priced at 75 cents per copy, with special prices to schools.
Hobart Brothers Co., Troy, Ohio.

"FAIRPRENE" CEMENTS AND CAULKING COMPOUNDS—
Technical Service Manual — "'Fairprene' Cement, a New Industrial Adhesive," devoted to "Fairprene" Cements and Caulking Compounds, described as unvulcanized synthetic elastic compositions, dispersed in a suitable solvent, which contain either the activating ingredients for vulcanization with heat, or are so formulated that vulcanization will take place at atmospheric temperatures with the addition of a solution of activating ingredients.
E. I. du Pont de Nemours & Company, "Fabrikoid' Division, Fairfield, Conn.

AUTOMATIC RETRACTABLE OIL OR GAS IGNITION SYSTEM—
Folder—illustrating and describing the Enco Automatic Retractable Oil or Gas Ignition System for lighting off pulverized coal with remote control.
The Engineer Company, 75 West St., New York, N. Y.

"Fifty Years of Chemical Progress"—A 48-page booklet commemorating the fiftieth anniversary of The Mathieson Alkali Works, Inc., 60 East 42nd Street, New York City. The booklet traces the growth of the Mathieson organization and describes the company's major developments.

LEEDS & NORTHRUP PRECISION INSTRUMENTS—
Official Publication—"Modern Precision," 1942 Spring Edition, presenting news of Leeds & Northrup instruments, controls and heat-treating methods.
Leeds & Northrup Company, 4901 Stenton Ave., Philadelphia, Pa.

LINK-BELT BULK-FLO ELEVATOR-CONVEYOR—
Catalog and Data Book No. 2075—Illustrating and describing the Link-Belt Bulk-Flo elevator-conveyor, including two new sizes; power formulae and other engineering data have also been added; book contains diagrams showing paths of operation, gives long list of materials that can be handled, and contains illustrated case studies, with tables of sizes, capacities, dimensions, etc.
Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

PUMPS FOR THE FARMER—
Poster—designed to promote the use of running water for helping the farmer to meet war production quotas.
The F. E. Myers & Bro. Co., Ashland, Ohio.

TEMPERATURE INDICATORS—
Bulletin No. A-305—Presenting the complete line of Foxboro Potentiometer Temperature Indicators and Indicating Resistance Thermometers.
The Foxboro Company, Foxboro, Mass.

VALVES FOR BOILER ROOM SERVICE—
Bulletin E-100—32 pages, illustrating and describing Everlasting quick-operating valves for blow-off water columns and other boiler room services.
Everlasting Valve Company, 49 Fisk St., Jersey City, N. J.

Mines Register—This edition of the Mines Register, successor to The Mines Handbook and The Copper Handbook, describing the non-ferrous metal mining companies in the Western Hemisphere, is the twenty-first volume and a complete revision of Volume XX published in 1940.

The book contains descriptions of approximately 4,000 active mining companies and lists more than 22,000 inactive mines. Active mines have been listed in a special section, according to their geographical location, and some of the leading non-ferrous mines in various parts of the world are also treated in a special section.

Other features of the edition are a statistical section on non-ferrous metals; alphabetically arranged list of officers and directors and companies with which they are connected; alphabetical list of consulting and mining engineers, superintendents and purchasing agents, and their compaies; special section devoted to security prices of mining companies listed on important exchanges in the United States and Canada; buyers' guide; equipment and supplies section, and other features.

Published by the Atlas Publishing Company, 133 West 21st Street, New York City, the book contains 742 pages and is priced at $15.00 postpaid.

New Aluminum Plants Start Operations

Three new Government-owned aluminum plants have started operations so far this month, a fourth is expected to begin production early in June and the entire first expansion program of seven plants will be in production by August 1.

All seven plants will be completed ahead of schedule. The first two were finished in six months, as compared to a normal building time of eleven months. The plants will get into full production from 60 to 120 days after completion, depending upon size.

The completed plants are located in Oregon, Washington and New York. The Alabama plant will be completed next, followed by others in Arkansas, California and a second plant in Washington, in that order. All were built for the Government by the Aluminum Company of America, which also will operate the plants.

Plants in the second expansion program, also of 640 million pounds annual capacity, will start coming in about December of this year. The flow of aluminum metal is expected to increase every month from now on until the early part of 1943 when the entire aluminum capacity as planned by WPB will be operating at its peak.

"Southern Pine Garages"—A new revised edition is now being distributed by lumber dealers, according to H. C. Berckes, Secretary-Manager of the Southern Pine Association, New Orleans, La. The book features nine garage plans, four single-car designs and five two-car garages.

TENTS
TARPAULINS
WINDBREAKS
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CONTRACTORS' SUPPLY DEALERS in every state sell the Fulton line. Specify SHUREDRY and FULTEX Tents, Tarpaulins, and Windbreaks — anything made of canvas. Also Fulco Road Mats and Burlap. If your dealer cannot supply you, ask our nearest plant for catalog
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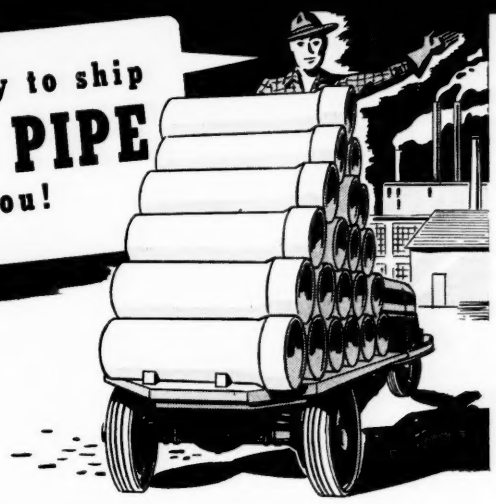

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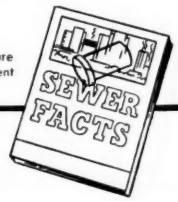

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General Industrial Agent
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New Priorities

(*Continued from page 36*)

for military and lend-lease consumption takes precedence over can-sized preference. M-86-b orders canners to set aside for the government their entire 1942 pack of salmon, sardines, Atlantic herring and mackerel.

Freight Cars—L-97-a-1 Amend. #1 provides that producers may accept deliveries of parts and materials from suppliers if they are not subject to other rated orders.

Fuel—L-70 Amend. #2 reduces gasoline deliveries in 17 Eastern states and District of Columbia; also 50% cut in deliveries effective June 1 in Washington and Oregon, and complete cut of deliveries in restricted areas for racing cars and racing motor boats. L-56 as amended restricts deliveries for use in space and central heating, coal spraying and operation of domestic and commercial water heating equipment. M-144 cancels all preference ratings assigned to fuel oil purchases.

Glass Containers—L-103 (Amend. #1 of Sched. B) prohibits manufacture of containers which cannot be returned to breweries for refilling. Effective July 1.

Goatskins, Kidskins and Cabrettas—M-114 Amend. #2 limits the amount that may be put into process by any tanner during June and July to a total of 140% (or an average of 70% for each month) of the average processed in the same period of 1941.

Goose and Duck Feathers — M-102 Amend. #1 imposes allocations on sales, deliveries and use.

Hand Trucks—L-111 eliminates all but the most essential uses of rubber tires on hand trucks. Use form PD-486.

Horsehide — M-141 places complete control over horsehide fronts which can be made into leather suitable for military garments.

Imports — M-63 Amend. #5 adds to list of materials restricted from private importation. M-63 Amend. #6 adds to commodities on list A and places all oil imports under control.

Indiana Kyanite—M-143 conserves supply by directing distribution. Use form PD-466.

Industrial Equipment — L-123 places restrictions on acceptance of orders for, and production and distribution of general industrial equipment.

Industrial Machinery — L-83 as amended adds three groups of machinery—dairy, coffee grinding and food slicing and grinding—to 14 classes of original order. Amend. #1 to L-83 as amended limits dairy, coffee grinding, and food slicing and grinding machinery to that of one horsepower or over.

Instruments—L-134 restricts manufacture, sale and delivery of instruments end or instrument connection, control valve, regulator, or safety valve except on rating of A-10 or higher.

Istle—M-138 restricts use of raw istle to brushes, twine and cordage, and for padding on orders rated above A-2.

Jute and Jute Products—M-70 Amend. #3 places restrictions on use of jute for making rugs, carpets and linoleum for civilian use; use form PD-222-B. This amendment has been relaxed by telegram to permit manufacturers to use jute and jute carpet yarns in process in their mills.

Kapok — M-85 Amend. #2 prohibits use as insulation for industrial refrigeration and stuffing for civilian maritime equipment and assigns A-2 rating to government orders.

Kitchen and Household Articles — L-30 Amend. #2 removes restrictions on wood or paperboard coat hangers if sole scarce material content is steel wire hook. Also adds restrictions on use of joining hardware.

Laundry, Dry Cleaning and Pressing Machinery—L-91 as amended places control over manufacture, sale and use of new equipment. Manufacture prohibited after May 15. Does not apply to repair or maintenance of existing equipment. Use forms PD-418, 419, 25a and 25.

Lauric Acid Oils—M-60 Amend. #1 permits manufacturers to use in June and July 50% of the amount used in corresponding month of 1941 and 25% in August and September.

Lawn Mowers — L-67 Amend. #1 allows manufacturers to use iron and steel fabricated prior to March 31 which cannot be used for any other purpose.

Lead—M-38-h sets the lead pool for May at 15% of the March production, and M-38-i also sets at 15% the pool for June production.

Leather, Sole—M-80 as amended 5-22-42 places restrictions on cutters regarding sales, deliveries and use of reserved cut stock. Those affected must file reports.

Lumber—L-121 freezes sales and deliveries by large producers of construction softwood for 60 days, effective May 13, except to meet needs of Army, Navy and Maritime Commission; use forms PD-3, 3A, 4, 423. M-122 imposes drastic restrictions on delivery and use of those varieties of mahogany suitable for combat aircraft and other military purposes.

Metal Household Furniture — L-62 Amend. #2 permits use of iron and steel in manufacturers' inventories which consists of parts so processed as to be worthless for any other purpose.

Metal Plastering Bases and Accessories — L-59 Amend. #1 removes permission to produce items for war contracts in addition to established quotas.

Mica — M-101 as amended prohibits use of "strategic mica" after June 1 for Army and Navy products unless they are implements of war and none may be used for any product after July 1 unless specifically authorized by WPB.

Mines—Amend. #2 to P-56 as amended 3-2-42 eliminates special reference to gold and silver mines from original order.

Molasses — Amend. #1 to M-54 as amended 3-27-42 removes restrictions on producers and importers deliveries to bulk wholesalers; use forms PD-456, 457 and 458. Amend. #2 to M-54 as amended 3-27-42 gives farmers permission to acquire an amount equal to their purchase in the corresponding quarter for year ending June 30, 1941.

Motor Trucks, Trailers and Passenger Carriers — P-54 (Amend. #4 and Exten. #6) amends and extends original order and assigns an A-3 rating; use form PD-25a. M-100 Amend. #1 modifies the New Commercial Motor Vehicle rationing program so that government war agencies can obtain trucks without special permits when trucks are built to order for them.

Musical Instruments — L-37-a freezes present stocks of 27 different band instruments in hands of makers, jobbers and wholesalers. Also limits or stops production of most instruments between now and July 31 after which production of all instruments containing more than 10% by weight of critical materials must cease.

Naphthenices and Naphthenic Acid—M-142 places use under strict allocation control; use forms PD-438 and 439. M-105 puts naphthalene distribution under rigid allocation control effective June 1; use forms PD-434 and 435.

Office Machinery—L-54-b Amend. #2 modifies distribution restrictions to enable dealers to return new equipment to manufacturers willing to accept it.

Outboard Motors and Parts—L-80 Amend. #1 permits sale or lease of motors of six horsepower or more to specified government agencies.

Passenger Carriers—L-101 places restrictions on delivery of passenger carriers. Production and delivery to be maintained by WPB.

Pencils — L-113 prohibits use of any metal except limited amounts of iron or steel in manufacture. L-113 Amend. #2 permits until July 1 the use of any pigments or furnishing materials which manufacturers of wood cased pencils have in stock.

Petroleum—M-150 restricts placing of orders, deliveries and use of aromatic solvents petroleum. M-68 Amend. #4 provides for deliveries of oil industry materials between persons in U. S. and Possessions and Canada but not elsewhere. M-68-c as amended 3-23-42 supercedes Int. #1 of order issued Feb. 7, 1942.

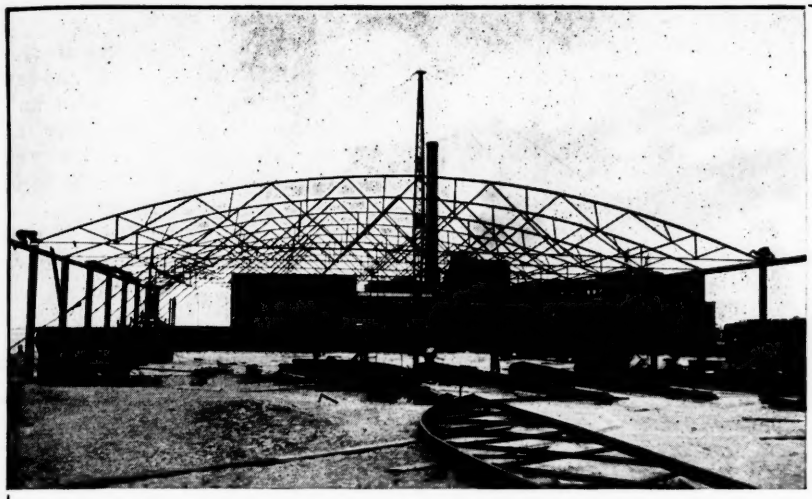
Phosphate Rock — M-149 removes inventory restrictoins to permit consumers to take advantage of any available transportation facilities.

Pigments, Zinc Sulphide — M-128 establishes a monthly producers' pool from which orders will be filled. Production, other than that set aside may be sold without restriction. Exports prohibited unless specifically authorized.

Pistols, Rifles and Shotguns — L-60 Amend. #1 releases for sale to public certain types of firearms not needed by the armed forces.

Plumbing and Heating—L-42 (Sched. #5 Amend. #1) permits use of lead and zinc as preserving finish on plumbing fixtures and trim. L-42 (Sched. #7 Amend. #1) permits WPB to make exceptions to schedule in meritorious cases. Int. #1 permits use of new equipment as collateral in security transactions with no physical movement of equipment other than for storage or warehousing; use form PD-423. L-79 as amended 5-23-42 removes ban and permits sale and delivery for civilian needs of any equipment with A-10 or higher rating. L-42 Sched. #10 simplifies electric cellar drainers or

(*Continued on page 62*)



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The Source of Our Rubber

(*Continued from page* 23)

menaced shipping from Ceylon: another six per cent was endangered.

Look at the figures and note the fact that the Amazon, Mexico and Africa, each in its best year, never produced more than a total of 75,000 long tons.

Take the fact that 30 years elapsed between the time the first 70,000 Hevea tree seeds left Brazil and the time that more than 100,000 long tons of rubber was produced in the Middle East. Take the fact that experts say it will take years to increase radically the amount of guayule rubber. Take the fact that other experts say it will take years to turn out an appreciable amount of synthetic rubber in factories we haven't yet finished building. Take all those facts, add them together and what's the total?

What this total means to the United States will be discussed in another article which will appear in the July MANUFACTURERS RECORD.

Timber Takes Its Place In Construction

(*Continued from page* 25)

ing tons of needed metals for the war effort is the realization that dawns upon hundreds of thousands of Americans regarding the fact that lumber is a renewable natural resource — an agricultural crop whose trees are harvested when they are ripe and further, that this growing building material has been serving the needs of the country since early colonial days. Not only are the lumbermen themselves conscious of the need for growing new trees and protecting that growth from man-made fires and inset attacks, but every citizen is appreciating more and more the part that our forests play in the economic and social welfare of this country.

Lumber as a modern building material has been too far overlooked in the colleges and universities of our country where architects and engineers are trained for the design and execution of modern structures. By that is meant the fact that lumber and timber have not been as prominent in the curricula of architectural and engineering schools of this country during the past few years. It is not the purpose here to endeavor to fix the blame for its absence on anyone. Rather, it is better to point out that the lumber industry has been making steady progress and that its use has kept pace with other modern materials. To supply architectural and engineering students with basic training and graduates with comprehensive material, the Southern Pine Association has just published "A Course in Modern Timber Engineering," and has made it available to several universities. Tulane University of New Orleans and the University of Colorado have used it as the basis for their course in modern timber design, and other colleges have given it serious consideration.

So, the lumber industry has been on the alert to do its full share in getting the job done for America. Long before Pearl Harbor, it made a noteworthy contribution to the housing of America's army by supplying billions of feet of lumber for cantonments, barracks, hospitals, and other buildings at army posts and naval bases. It continues to serve the needs of the huge program of defense housing, for ships, and a host of other uses. Its availability today testifies to the wisdom of that part of the industry which practiced good forestry in the past to assure today's building needs and points the way to an extension of reforestation for the renewal of today's harvests of the forest for tomorrow's construction.

Worthington-Gamon Meter Company Officers

Harry C. Beaver, president of the Worthington Pump and Machinery Corporation of Harrison, N. J., has been elected president, also, of the Worthington-Gamon Meter Company of Harrison. R. R. Anderson, treasurer and manager of Worthington-Gamon Meter Company, has been elected vice president and director, but will retain his office as treasurer.

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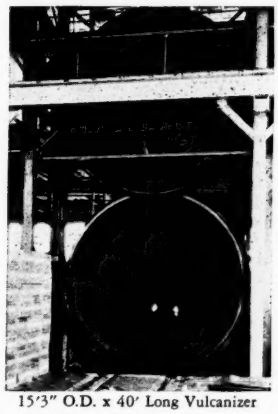

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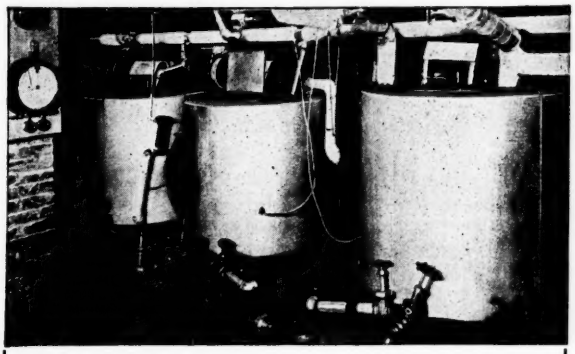

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Airplane Production Goes to War

(*Continued from page* 20)

production possible for an industry that had been dedicated to handbuilding its product.

There was not only a change within the industry, but also one in its scope. Automobile makers were becoming interested in airplanes. Plans for new buildings more spacious than any others in the world began coming off drawing boards. While continuing to run automobiles off their regular production lines, the major companies took on substantial orders for aircraft engines, parts, subassemblies and complete planes.

This was the "make-ready" program for the objectives set in 1940 for this year and next year. Meanwhile production in existing plants in the aircraft industry began to rise steadily. From 561 planes in July, 1940, the rate went to more than 800 in December, and the total for the year was just over 6,000.

In the first quarter of 1941, about 1,000 planes a month were produced and by September this figure had been doubled. For military reasons, exact figures later than that time are not available for publication, but it has been stated by Donald M. Nelson that three months after the start of war, production was 50 per cent higher than it was at the time of the attack on Pearl Harbor.

As new facilities came into production and old ones gained new skill, the aircraft industry added to its fast-growing family plants that once made automobiles and bodies, household refrigerators, hardware, hydraulic control equipment, pneumatic tools, electric generating equipment, electrical equipment, rubber products, elevators, pumps, and railroad cars. Hundreds of subcontractors feed these plants the thousands of gadgets that go into a modern fighting plane.

The fastest military airplane in the world with speed well in excess of 400 miles an hour is the Army's P-38, the Lockheed "Lightning." This low-wing monoplane with tricycle retractable landing gear and two 12-cylinder supercharged engines rated at 1,150 horsepower weighs about 13,500 pounds, is armed with 37-mm cannon and 50 caliber machine guns.

Also heavily armed with 37-mm cannon, 50 and 30 caliber machine guns is the Bell "Airacobra," P-39, a single-place, single-engine pursuit plane that weighs about 6,000 pounds. As a middle-altitude fighter, as well as for attack on ground targets, this plane has no equal.

The Republic "Thunderbolt" P-47 is the fastest single-engine airplane in the world. Heavily armored and bristling with both large and small caliber guns, this plane has done 680 miles an hour in a power dive test and more than 400 miles an hour in level flight. It is powered by a 2,000 horsepower engine and has a four-blade propeller with a diameter of more than 12 feet. Comparable in weight to the P-38, the P-47 is slightly smaller in dimensions. Its length is 32 feet 8 inches, its height

(*Continued on page* 58)

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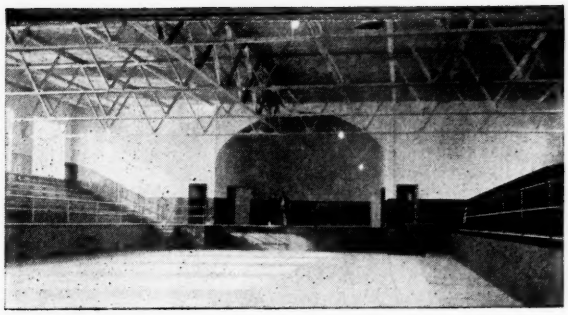

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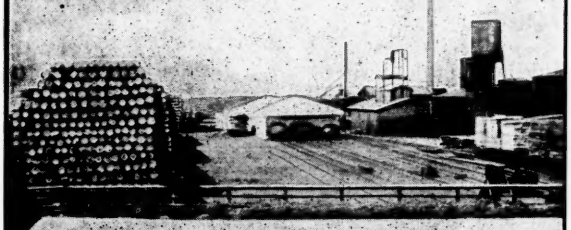

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Airplane Production Goes to War

(*Continued from page 56*)

13 feet, and its wing span 41 feet.

One of the latest Navy fighters is the Grumman "Wildcat," a fast, maneuverable, single-engine plane. Earlier models were used by the Marines in the defense of Wake Island.

The "Airacobra" and "Lightning" are flying with the RAF under the same names. The British call the Navy's "Wildcat" the "Martlet." The Curtiss "Tommyhawk," known to the United States air force as the P-40, is fighting over four continents —with the Russians in Europe, the British in Africa, the Flying Tigers in Asia and the Americans in Australia. The newer Curtiss "Kittyhawk," Brewster "Buffalo," Republic "Lancer," and North American "Mustang" are among the other American-made fighters serving the United Nations.

Bombers are getting increased emphasis in production schedules and high priority ratings this year for the obvious and purely military reason that there is a pressing need for this type of offensive plane that can carry its deadly load to distant targets.

The program now in effect calls for large quantities of four-engine bombers. These planes weigh nearly seven times as much as some single-engine fighters, and to produce them takes considerably more man hours, more raw materials, more engines and more plant space.

It is generally agreed among military observers that in the heavy bomber class, the enemy has nothing to compare with our Boeing B-17, "Flying Fortress," or our Consolidated B-24. The British have been using both of these four-engine bombers for some time and have renamed the latter the "Liberator." When long-distance bombing raids are undertaken, it can be assumed safely that among the RAF planes sent on the missions are a sizable number of these American-built craft. A nautical version of the B-24 is the Navy's flying boat "Coronada."

In the medium bomber class, the American army has two different planes—the B-25 and B-26—whose range speed and bomb carrying ability is greater than any similar bomber in any other air force. The Martin B-26 two-engine bomber is the fastest medium bomber in the world. It has a slightly higher top speed than the B-25, made by North American. However, the latter bomber has speed nearly as great as famous foreign fighter planes. The Navy's two-engine bomber is the flying boat "Catalina." One of this type, on British patrol, sighted the fleeing German battleship Bismarck and directed the British fleet to its position for the kill.

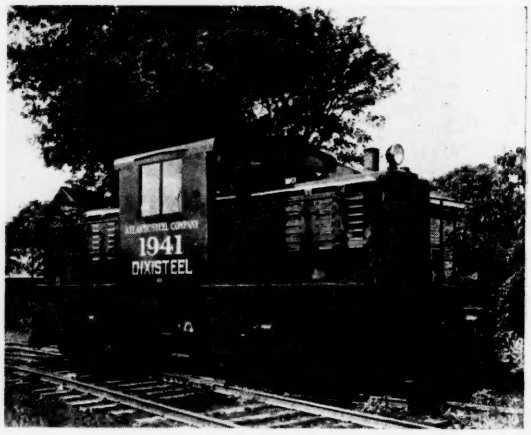
The Army's twin-engine light attack bomber A-20, designed by Douglas, is so fast the British use an earlier version—named the "Havoc"—as a night fighter. American-built attack bombers going

(*Continued on page 65*)

WHITCOMB LOCOMOTIVES
for low cost haulage

WHITCOMB locomotives are today playing their part in the production of urgently needed raw materials and manufactured products. They are operating in powder plants, shipyards, mines, steel mills, in fact, anywhere materials must be moved quickly at low cost haulage.

Precision in the construction is the keynote to the high availability and low maintenance of WHITCOMB locomotives. This is why they have established a reputation for unsurpassed dependability in all types of service.



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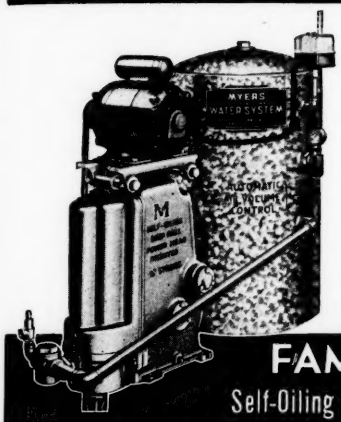

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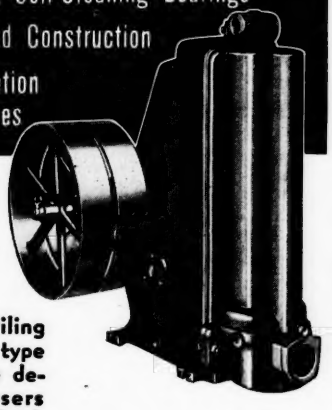

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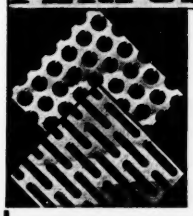

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Texas Soil Conservation Attracts Worldwide Attention

(*Continued from page* 31)

drainage basin have cooperated spiritedly with the technicians of the Soil Conservation Service, as well as with one another, in order to get complete control of wasteful erosion. Today the measures that have been used on the land are effectively holding soil and water on the 34,000 acres of these 174 adjoining farms.

Standing on a high point in the watershed, you can see revamped and protected fields extending in an unbroken pattern as far as the eye can reach. Terraces to check the flow of water wind across the boundaries of two, three, and even half a dozen adjoining farms. Strips of cotton curve back and forth along the contour—across the slopes on the level—and in between are erosion control strips of thickly growing grain crops, sorghum, Hubam clover, and bluestem grass.

With respect to production, the conservation work has resulted in an increased yield of 70-odd pounds of lint cotton per acre and about 4½ bushels of corn as compared with yields obtained on similar farms of the locality where there has been no conservation work. The increased income has netted at least $2.50 per acre over and above that derived from surrounding non-conservation farms. Not only has farm income been increased, but stream overflows do not rise to former high levels, and crop damage by floods has been practically eliminated.

One of the most significant features of the whole job has been the comparatively low cost of installation and maintenance. By building terraces across farm boundaries, farmers in the watershed have been able to eliminate a large number of drainage outlets that would have been necessary if each farm had been treated as a separate unit without consideration of the needs and relationships of adjacent lands. Where terraces met on farm boundaries, a joint outlet was built. Each farmer gave half the land needed for the channel; and both agreed to share the costs of construction and upkeep. In the solid block of conservation-treated farms, exactly one hundred farms are involved in 42 cooperative terrace outlet systems. Most of these drain the water from two adjacent farms. But eight of them serve three farms each; one handles the water from five farms; and one especially big channel takes care of six separate holdings.

And these joint terrace outlets are only the outward manifestation of a deep-seated spirit of mutual helpfulness that resides in North Elm Creek watershed. Probably nowhere has there ever been a more impressive example of neighborhood cooperation in the solution of a common land problem.

Many of the farmers entered into signed agreements with one another for permanent maintenance of the cooperative work—the work done along waterways and gullies and other places affecting farms that touch one another. I have been told that such agreements, if recorded at the Court House, would become permanent attachments to the land.

After a visit to the North Elm Creek area, I came away more encouraged—more optimistic about the ability and the eagerness of American farm people to establish permanent farming systems. No such permanency is possible, of course, if the land is allowed to wash away.

This same general spirit prevails in many other parts of the Nation, especially throughout the rolling lands of the cotton and tobacco sections and the hilly portions of the Corn Belt, the Wheat Belt, and even the potato lands of Aroostook County, Maine. The 1930's may well go down in American history as the decade of conservation. It was during this period that we first started to study and attack the erosion problem on a nation-wide scale. And it was on the 12th day of May, 1934, that the first great dust storm rolled 2000 miles across America from the "Dust Bowl" country just east of the Rockies to blot out the sun over the nation's capital and to blow grit between the teeth of New York City folks.

During the 1930's people in all parts of the country and all walks of life began to think about the soil and its preservation more seriously than ever before. Farmers and agricultural workers combined their efforts to transform the abstract principle of conservation into a living reality on the land. During the past four years the whole movement has been given tremendous impetus by the passage of soil conservation districts laws in 42 states, including every Southern State.

There is every reason, with the start that has been made, to look forward to a vast spreading out of work like that done along North Elm Creek, Texas, over the other millions of acres throughout the country needing protection from erosion.

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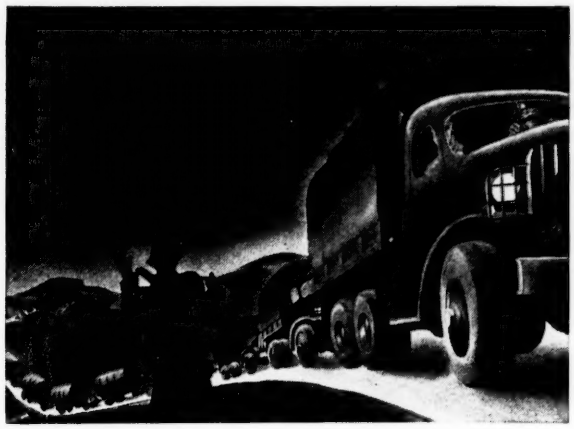

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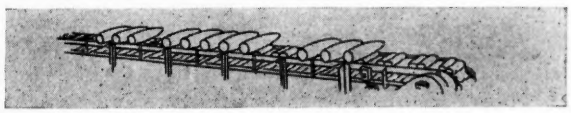

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OPA's Job

(*Continued from page* 27)

tions. Price control in particular is a very necessary part of that plan. Among other things, it eliminates unrest and insecurity on the part of both business and individuals. It enables industry to plan with confidence and to move ahead with confidence. It enables us to put all the money we can into war stamps and bonds. It makes it possible for the government to plan for necessarily higher taxes.

We at OPA are engaged in the business of building and securing a sound economic structure. Price Control, rent regulation and rationing are the only foundation on which we could build with the solid reassurance that the dark tides of war would not prevail against that structure.

New Priorities

(*Continued from page* 52)

sump pumps and prohibits use of copper or copper base alloys in certain parts of the units. L-42 Sched. #12 prohibits after June 20 the use of metals other than in joining hardware, coating, or reinforcing mesh but permits limited amounts of iron and steel in specified cases.

Power and Steam Equipment (Heavy)—L-117 restricts manufacture and limits sale to Government agencies and for orders other than repair and maintenance rated A-9 or higher. Schedule A lists equipment regarded as heavy power and steam. Requires forms PD-1, 3, 3A, 1A, 200 and 200A.

Projects (Defense)—P-19-i Int. #1 advises suppliers of materials used in construction of aluminum and magnesium plants the deliveries should be made on schedule even though subsequent orders carry higher ratings.

Railroad Equipment — L-97 Amend. #1 excludes mining locomotives from provisions of original order. L-97-a-1 Amend. #2 permits sale and delivery of car parts designed for construction or repair provided the material contained in them was obtained under a preference rating.

Rayon Yarn — M-37-c Amend. #1 grants manufacturers operating 5-gauge machines preferences in deliveries of five denier sizes from the amount of viscose and cuprammonium yarn set aside for hosiery.

Refrigerators, Domestic Mechanical —L-5-d establishes rules for disposition of frozen stocks in hands of distributors and manufacturers. Requires forms PD-427, 428, 429, 430, 431 and 432.

Rhodium — M-95 Int. #1 as amended 4-17-42 defines the word "jewelry" in original order to include silver deposit glassware.

Rubber — M-10 Amend. #2 subjects rubber substitutes of the general type of Koroseal and Vinylite to allocation control. M-15-b-1 Amend. #5 sets specifications for manufacture of feeding nipples. M-124 Amend. #4 prohibits use of bare rubber thread and covered rubber thread of size 60 and coarser in manufacture of specified health and medical products.

Safety Rayons—L-72-a freezes sale and delivery of all manufacturers and jobbers stocks except those in transit or for armed forces.

Sextants—L-58 Int. #1 defines terms in regard to mariner's sextants.

Spices—M-127 restricts distribution of black and white pepper, pimento, allspice, cassia, cinnamon, cloves, ginger, nutmeg and mace. M-127-a fixes percentage quotas for deliveries.

Steel—M-21 Amend. #4 requires filing of PD-73 with all purchase orders to be delivered before June 1. M-21 Amend. #5 places restrictions on iron and steel products after May 15 except those rated A-10 or higher. M-21-a Amend. #3 sets monthly melting schedule for alloy iron and alloy steel and further restricts metal deliveries; use forms PD-391, 391a and 440. M-21-b Amend. #4 imposes inventory restrictions and forbids deliveries by warehouses on ratings lower than A-10 except in specified cases; use forms PD-83-a, 83-f Rev., and 83g. M-126 limits production of more than 400 civilian products; use form PD-437. M-21-b Amend. #5 establishes quota restrictions on iron and steel products for dealers. M-24 Amend. #1 authorizes consumers of iron and steel scrap to accept scrap deliveries without

(*Continued on page* 65)

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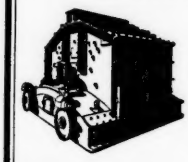

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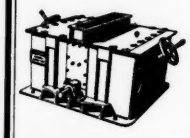

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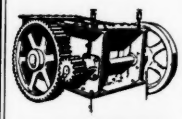

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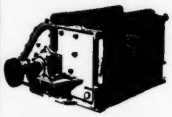

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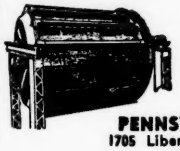

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That will, that belief, is known as *morale.*

Our enemies have had years of indoctrination. They have been conditioned to believe themselves part of a "new order" . . . to which the contribution of their lives is small but all-important. They believe themselves cogs in a vast machine.

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To maintain their morale in the American way, the USO has devoted all its time and energy since practically the beginning of conscription.

It has done this by staffing and maintaining club houses near all training camps and in outlying possessions of the United States.

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WANTED
EXPERIENCED MAN
Thoroughly capable of handling materials in large Southern shipbuilding yard, title Superintendent Materials and Supplies. Includes disposition all incoming freight, proper storage and final disposition to ships and control of warehouse and interplant traffic. Must be alert, thorough, interested in detail. Experience, education, references, salary first letter. All replies confidential. Address No. 9519 c/o Mfrs. Record

Foreman desired, familiar with installation of underground sewer, water and gas distribution systems. Contact Mechanical Division, Virginia Engineering Company, Inc., Naval Base, Norfolk, Virginia.

New Priorities

(*Continued from page 62*)

regard to restrictions of Priorities Reg. #1 as amended. M-21-f Amend. #1 places steel for 90-mm armor-piercing and semi-armor-piercing shot under complete allocation control. M-126 Int. #1 interprets original order as it affects beds, bed springs and mattresses. M-45 Amend. #2 requires reserve allotments of steel sheets to be expanded to include both hot and rolled sheets to relieve steel drum shortage.

Supplier's Inventory Order — L-63 Amend. #2 permits wholesalers and distributors to accept deliveries of limited quantities of specific items regardless of their total inventory. L-63 Exemption #3 removes tires, tubes and automotive parts from supplies covered by L-63. L-63 Exemption #4 removes aluminum stocks in hands of wholesalers and distributors from restrictions of L-63.

Tantalum—M-156 places restrictions over sales and deliveries and places entire output under complete allocation control. Order M-63 unaffected by this order. Use forms PD-487, 488 and 489.

Tea—M-111 as amended 5-1-42 makes more tea available and makes allowance for irregularities in delivery schedules.

Toluene (Toluol) — M-34 Amend. #2 places strict control over material containing toluene to provide manufacturers with ample supply. Excludes oils derived from petroleum.

Tools—E-1-b places all new critical machine tools under limited allocation system and provides for an apportionment of each producer's monthly deliveries of each size of each type of tool, 75% to service purchasers and 24% to other purchasers. Use forms PD-3, 3A and 4.

Toys and Games—L-81 Int. #1 clarifies meaning of term "raw material form" in the order.

Zinc, Metallic—M-11 as amended 5-1-42 places restrictions on deliveries under allocation certificate system: use forms PD-94a and 450. M-11-k determines the amount of metallic zinc, zinc oxide and zinc dust to be set aside by producers for May. M-11-a places zinc oxide and dust under pooling arrangement.

Airplane Production Goes to War

(*Continued from page 58*)

to the United Nations' air forces also include the "Douglas," the "Boston," the "Martin," "Baltimore," "Lockheed," "Hudson," and "Ventura." There have been reports that our bombers, in the four-engine and two-engine classes, can complete their missions and outrun certain highly vaunted foreign fighter planes that have attacked them.

The Army and Navy use the same Douglas dive bomber, called the A-24 by the former and the "Dauntless" by the latter service. Other dive bombers include the Vultee "Vengeance" and Curtiss "Helldiver."

Besides fighters and bombers, the industry is building numbers of observation planes, transports, and trainers. While all of these are being turned out for the use of the United Nations, newer planes are coming out of the blue-print stage. These will be faster, larger, have greater load ability and more range than the ones already the "finest in the world."

Motors, A.C. and D.C., ¼ to 150 H.P. Transformers, 1 KVA to 100 KVA. Air Compressors; Belting; Blowers; Circuit Breakers; Conveyors; Crushers; Drills; Derricks; Fans; Generators; Grinders; Hoists; Lathes; M-G Sets; Electric Locomotives; Mining Machines; Pumps; Reels; Rotary Converters; Starters, AC and DC; Tipple Equipment; Planers; Shapers; Sirens.
LATHE—Niles-Bement-Pond, 36" x 14', heavy duty, quick change, double back gear, taper attachment.
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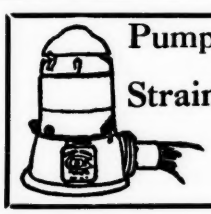
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1—Alligator Shear 12" blade.
1—Mayer Bros. trip hammer, 25#.

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1—Link Belt, K-48, Ser. No. 1728, 60′ boom, 2 yd. bucket.
1—P&H, Model 655A, Ser. No. 6526, 45′ boom and 1½ yd. shovel attachment. Diesel powered.
1—Lorain, Model 77, Ser. No. 9163, with 1½ yd. shovel front. Diesel powered.
1—Northwest Model No. 5, Ser. No. 3572, 50′ boom with 1¼ yd. pull shovel attachment.
1—Link Belt, K42, Ser. No. 1265, 45′ boom, 1¼ yd. bucket, also 1¼ yd. pull shovel attachment.
1—Northwest model 104, Ser. No. 1386, 45′ boom, 1¼ yd. bucket; with 1 yd. trench hoe attachment.
1—P&H Model 650, Ser. No. 4173, with 40′ boom and 1¼ yd. shovel attachment.
3—Northwest Model No. 4's, Ser. Nos. 3441, 3445, 3493, with 40′ boom and 1 yd. pull shovel attachments.
2—Erie, gas air, 2 yd. Ser. No. 4365, 9758, with 45′ boom and shovel attachment.
1—Osgood Heavy duty, Ser. No. 2069 and 40′ boom, 1 yd. bucket and with 1 yd. shovel attachment.
1—Osgood "Commander" ¾ yd., 30′ boom, Ser. No. 2403 with ⅜ yd. bucket.
1—Thew ¾ yd. Gasoline Shovel with ¾ yd. shovel front and 40 ft. crane boom. Serial No. 2801.
1—Koehring Model 301, Ser. 544 and 40′ boom, ¾ yd. bucket.
1—Byers Bearcat model 27, Ser. No. 5289, 30′ boom, ½ cl. sw. ½ yd. bucket.
1—Erie Steam Crane, 40′ boom with or without ¾ yd. shovel front.

TRACTORS

2—Allis Chalmers, Mdl. L 12 ton, #L637, 684, with Baker Hyd. Bulldozers.
1—Allis Chalmers, Mdl. 75, Ser. #7049, 12 ton gas powered.
4—Caterpillar, 1 Mdl. 65, 1 Mdl. 60 12 tons; 2—mod. 30, 5 ton, 1 with derrick attach.
2—Fordson tractors, equipped with winches.
1—Taylor tractor, Mdl. A-16-30.
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3—4x30x¼ Dryers or Kilns.
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2—1000 GPM Elec. Underwriters Fire Pumps.
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Bucyrus Erie 50-B electric shovel, 2 yds.
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Osgood Conquerer Shovel, gas, 1½ yd.
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Marion Model 32 steam shovel, 1½ yds.
Lorain 75A, 1¼ yd. Gas Shovel.
Buc. Erie 50-B Steam Shovel, 2 yds.
2—Universal 7½ ton Truck Cranes, Mack.
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